


DUNS SCOTUS ON THE REALITY OF SELF-CHANGE*

1. Introduction

COTUS radically departs from his mediæval predecessors on the subject of self-change. Prior to Scotus, the consensus on Aristotelian doctrine that formed the core of traditional High Scholasticism held the following theses: (i) self-change is impossible in the physical world; (ii) self-change, if possible at all, only applies where non-physical causes such as free will are involved; (iii) all apparent cases of self-change in the physical world are in fact cases of interaction between an agent and a patient that are really distinct.¹ This “common position” (as Scotus

* I would like to thank Sarah Broadie, Alan Code, Mary Louise Gill, Anna Greco, Timothy Noone, and Calvin Normore for information, comments, and advice. References to Scotus’s *Quodlibeta* are taken from Alluntis [1968]; all other references to Scotus’s works are to the Vatican Edition wherever possible, to the Wadding-Vivès text otherwise. I have had the benefit of consulting Alan B. Wolter’s unpublished translation of *QSM* 9, but all translations are my own. Citations of Aristotle’s text are taken from the Oxford Classical Texts series. Translations of Aristotle are taken from Scotus’s Latin text or from the relevant edition of *Aristoteles latinus*, rather than from the Greek original, since the Latin is not always in conformity with the Greek. Effer [1962] is a study of Scotus’s views on self-motion. The historical information he provides has to be used with caution. With regard to philosophical content, I fundamentally disagree with almost all of Effer’s analysis, to the extent that I understand it.

¹ Aquinas and Bonaventure are representative of the thinkers of their generation. Aquinas, in several places throughout his works (*In Phys.* 8.4 lect. 7; *Sent.* 1 d. 8 q. 3 art. 1; *Summa contra gent.* 1.13; *ST* 1a q. 2 art. 3; *Quaest. disp. de ver.* q. 22 art. 3; *Comp. theol.* 3), notoriously denied the possibility of self-change in defending the principle that everything that is in motion is moved by another. Bonaventure accepts a restricted version of the same principle, holding that self-change is only possible in the case of non-physical causes; in his *Sent.* 1 d. 37 art. 2 q. 2 n. 4, he writes: “As for the objection that everything that is in motion is moved by another, it should be stated that it is true in the case of natural motion, where nothing moves itself because nothing reflects upon itself due to being bound up with matter, but it is not true in the case of the will, which is an “instrument moving itself,” and the power that is in a spiritual substance is able to reflect on its substance—and so the mover is the same as what is moved. (The description of the will as an *instrumentum se ipsum movens* is taken from Anselm, *De conc.* 11, Schmitt [1946] 283–284.) Aquinas and Bonaventure agree on (i) and (iii); Bonaventure explicitly disavows (ii), whereas Aquinas’s position on (ii) is unclear. In the generation immediately prior to Scotus, the debate was sharpened by a running controversy between Henry of Ghent and Godfrey of Fontaines over

calls it) was taken to be the correct interpretation of Aristotle's discussion of self-change in *Phys.* 7–8, supported by three independent arguments as well as Aristotle's texts.

Scotus rejects the common position. He argues that self-change is a widespread feature of the physical world, where the agent and the patient involved in self-change are really the same—and, furthermore, that this is the view put forward by Aristotle.

Scotus's articulation and defense of his view is subtle and sophisticated. He discusses particular cases of self-change throughout his writings, but he treats the general possibility of self-change in *QSM* 9 q.14.² I shall

(*ii*). Henry of Ghent argued in his *Quodl.* 9 q.5 (Macken 1981) that there were six levels of motion, each corresponding to a different degree of separation between mover and what is moved, and at the first two levels—that of the divine and the created will, respectively—the term “motion” is used improperly, not corresponding to any real distinction but only an “intentional distinction”; in the remaining levels, self-motion is impossible other than as the interaction of really distinct parts. Godfrey of Fontaines then argued against Henry's position in his *Quodl.* 6 q.7 (de Wulf and Hoffmans [1914]), maintaining self-change to be simply impossible and concluding that the will is essentially passive. Henry replied at length in his *Quodl.* 10 q.9 (Macken [1983]), defending the thesis that the will is essentially active, emphasizing the difference between the self-determination of the will and merely natural motion. Godfrey offered a counter-reply in his *Quodl.* 8 q.2 (Hoffmans [1921]), insisting that the principle that nothing changes itself is a universal metaphysical principle without exception, and hence must apply to the will as well as to the natural world. Scotus's own discussion of self-change clearly reflects this recent controversy. If either, Scotus sides with Henry, but Scotus finds the agreement between Henry and Godfrey on (*i*) and (*iii*) at least as problematic as their debate over (*ii*). The substantive agreement between them is the basis of the “common position” as Scotus recognizes it.

² Scotus's major discussions of particular cases of self-change, apart from *QSM* 9 q.14, are as follows. Local motion, and in particular the movement of light and heavy bodies, is taken up in *Ord.* 2 d.2 p.2 q.6 (*Vat.* 7 350–374). Quantitative self-change in augmentation/diminution is taken up in *Rep. Par.* 4 d.44 q.1 (*WV* 24 530a–540b), and in condensation/rarefaction in *Op. Ox.* 1V d.12 q.4 (*WV* 17 614b–631b). Qualitative self-change in the activity of seeds and semen is taken up in *Op. Ox.* 2 d.18 q.unica(*WV* 13 84a–96b) and 3 d.4 q.unica(*WV* 14 182a–200b). The self-change involved in appetitive potencies, *i. e.* the will, is discussed extensively in *QSM* 9 q.15 and *Op. Ox.* 2 d.25 q.unica(*WV* 13 196b–224b). The self-change involved in cognitive potencies, *i. e.* the intellect, is discussed in *Ord.* 1 d.3 p.3 q.2 nn. 486–494 (*Vat.* 3 289–293), 2 d.3 p.2 q.1 (*Vat.* 7 517–534), *Op. Ox.* 2 d.25 q.unica(*WV* 13 196b–224b), and in the *Quaest. in De an.* q.13 (*WV* 3 544b–546b). (This last work is considered by some to be spurious). The dating of Scotus's work is a major undertaking, but it seems to be a well-founded conclusion that at least *QSM* 9 is a late and fully mature work. This is the opinion held by the editors at the Franciscan Institute who are preparing the critical edition of *QSM* for the Vatican Commission. Two pieces of evidence among many: (*a*) in *QSM* 9 qq.3–4 n.5 (*WV* 7 546a) Scotus refers to

concentrate on this discussion, giving particular attention to the movement of heavy bodies downward—thought by most mediæval philosophers to be the least defensible case of self-change in the physical world, since it involves inanimate objects.

I shall proceed as follows: §1 takes up the mediæval analysis of change, introducing some of Scotus's terminology and distinctions; §2 presents three arguments against self-change—the Modal Argument, the Primacy Argument, and the Continuity Argument—as well as textual evidence from Aristotle in support of the common position of Scotus's predecessors; §3 presents Scotus's "General Argument" for the possibility of self-change; §4 takes up Scotus's response to the Modal Argument; §5 takes up Scotus's response to the Primacy Argument; §6 takes up Scotus's response to the Continuity Argument; §7 takes up Scotus's interpretation of Aristotle.

1. Scotus's Analysis of Change

Taken most generally, "change" (*mutatio*) refers to any case in which non-being is prior to being.³ In this sense, God's act of creation *ex nihilo* counts as a change, despite the lack of any pre-existent persisting substratum. For most purposes, however, a stricter sense of "change" was thought to be more useful, captured in the view that change involves "a movement toward form."⁴ Three principles are involved:

- (1) The *subject* of the change, which is the persisting substratum.
- (2) A *form* φ .
- (3) The initial *privation* of φ in the subject, analyzed as follows:
 - (3a) The subject is not φ
 - (3b) The subject is in potency to φ

The *terminus a quo* of a change consists in the subject being merely in potency to φ ; the *terminus ad quem*, the subject being actually informed

his *Tractatus de primo principio*, which has been established to be a late work; (b) in *QSM* 9 q. 14 n. 17 (WV 7 595b) Scotus refers the reader "elsewhere" for a fuller discussion of how heavy bodies are moved downward primarily, and the only such discussion is found in *Ord.* 2 d. 2 p. 2 q. 6 nn. 481–484 (Vat. 7 371–373), which is known to be a late work.

³ Any kind of relation of priority/posteriority will serve here, not merely a temporal relation. This is part of the motivation for Scotus's doctrine of non-temporal "instants of nature."

⁴ Scotus discusses this sense of "change" in *Op. Ox.* 4 d. 11 q. 1 art. 3 n. 5 (WV 17 322a–324b), when he takes up the question whether transubstantiation is possible; he argues there that transubstantiation does not qualify as a case of change, due to the absence of a persisting substratum. The same point is made in a similar discussion in *Quodl.* 10.65–70 (Alluntis [1968] 396–399).

by φ . Each terminus is one of the opposite poles of a change. This is the level at which Scotus typically discusses change, and the sense in which he argues for the existence of self-change.⁵

Because change essentially involves the actualization of a potency, another factor must be added to the analysis:

(4) The cause of the potency's actualization.⁶

The abstract relation involved in (4) is called "causation" (*causatio*), and the activity corresponding to it is called "causing" (*causare*). The result of causal activity is what is caused (*causatum*), in this case called the "effect." In a case of causation, a cause causes its effect; causation is understood as a relation among things: the father causes his son, and so the father is identified as the cause of his son, the son as the effect. Hence the explanation of a particular change will cite some thing responsible for the change as its cause, where the change is the effect of causal activity.

Scotus often prefers to couch his discussion of change at a slightly more abstract level, speaking of *principles* instead of *causes*. Principles stand to causes as genus to species: causes are only one kind of principle (*Met.* 5.1 1013^a17). Roughly, insofar as principles are taken as metaphysical constituents of beings and not as rules or laws (*e.g.* the Principle of Non-Contradiction), a principle is the source of some feature or property possessed by a thing. Form and matter are principles of a material substance in this sense. Potency and act may also be construed as principles. Scotus therefore replaces (4) with the following factor required for an explanation of change:

(4*) The *principle* of the potency's actualization

Distinctions parallel to those drawn in the case of causation apply to principles as well, for which Scotus coins an artificial vocabulary.⁷ The abstract relation involved in (4*) is called "principiation" (*principiatio*), and the activity corresponding to it is called "principiating" (*principiare*). The result of principiative activity is called the "principiatum" (parallel to the effect in a case of causation). Yet unlike a causal effect, the result of principiative activity need not be some thing that is distinct: the principiatum may be

⁵ Aristotle's remark in *Phys.* 6.5 235^b6–7 that "change is that by which something is otherwise than it was previously" was understood to be the nominal definition of "change" in this sense.

⁶ The Greek term τὸ αἰτιον and the Latin term *causa* are each ambiguous between "reason" and "cause." I shall follow the common mediæval practice and speak only of causes.

⁷ The distinctions that follow deliberately simplify Scotus's discussion in *QSM* 9 qq. 3–4 n. 3 (*WV* 7 544a–b). They will be cleaned up at the end of §4 below.

the principiating itself, as in the case of potencies generally called “operations” (potencies whose acts are internal to and perfective of the agent: see *Quodl.* 13.47ff.). Thus causal explanation is only one variety of principiative explanation; like causal explanation, a principiative explanation of a particular change will cite some thing as the principle responsible for the change, where the change is the result (principiatum) of principiative activity. This level of generality is central to Scotus’s analysis of change and his defense of the possibility of self-change, as we shall see.

The actualization of a potency, as described, is a case of change: the existence of the form in the subject depends on principles that are logically, if not temporally, prior.⁸ Because the dependence in question need not be temporal, Scotus recognizes the continuous causation or actualization of an attribute (*passio*) in its primary subject as a kind of change as well; such attributes are said to be “coeval” with their subjects. Finally, substantial generation counts as a case of change, one in which the persisting substratum is identified as the matter belonging to the substance and the form in question is a substantial form.⁹

There are also changes that qualify as cases of motion, namely whenever the persisting substratum is a substance, and the form in question belongs to one of the categories Quantity, Quality, or Place.¹⁰ The remarks that follow apply generally to self-*changers*, in the sense outlined above, and thereby to the more particular case of self-*movers*.

2. The Case Against Self-Change

The common position of Scotus’s predecessors holds that explanations of

⁸ This fits well with Aristotle’s remark that “motion or change” (*motio vel mutatio*) is “the actualization of a potential to the extent that it is potential” in *Phys.* 3.1 201^a11–12, where the clause “to the extent that it is potential” was taken to refer to all the states of the subject that are intermediate between each terminus of the change. Scotus, as most mediæval philosophers, accepted this remark as the real definition of change, applicable to the more restricted cases of change that also qualify as motions (see below), which themselves were more precisely defined in *Phys.* 3.1 201^a28–29 as “the actualization of the mobile insofar as it is mobile.” Note that (1)–(3) serve to spell out what it is for a subject to be in potency to a given form.

⁹ For Scotus, prime matter has esse of itself, and hence may persist throughout a change; this is compatible with the substantial form creating an essential unity with the matter. See *Op. Ox.* 2 d. 12 q. 1 and q. 2.

¹⁰ Scotus’s terminology most likely derives from *Phys.* 5.1 225^a34–b3, where Aristotle asserts that changes in quality, quantity, and place are κινήσεις (*motiones*, “motions”) in the strict sense, whereas the term μεταβολή (*mutatio*, “change”) applies to all these and to substantial generation and corruption as well.

particular changes never offer one and the same thing as both the subject and the cause of the change. The impossibility of self-change was thought to be demonstrated by three arguments inspired by, but independent of, Aristotle's texts: [A] the Modal Argument; [B] the Primacy Argument; [C] the Continuity Argument. In addition, Aristotle's discussion in *Phys.* 6–8 was interpreted to rule out all cases of putative self-change.

[A] The Modal Argument

The most widely accepted argument for the impossibility of self-change is based on an application of the Law of Non-Contradiction to the theory of modality, together with the definition of change and two causal axioms. Scotus presents the Modal Argument in *QSM* 9 q. 14 n. 2 (*WV* 7 583a):

[The Modal Argument] is taken from *Phys.* 3.2 [202^a10–13]. . . The mover moves insofar as it is in act, and the mobile is moved insofar as it is in potency, as is evident from the definition of motion given in [*Phys.* 3.1 201^a11–12].¹¹ However, it is impossible that the same thing be at once in potency and in act with respect to the same and according to the same. Therefore, [nothing can be moved by itself].

The Modal Argument may be reformulated at a more general level as follows:

- [A1] The *subject* of a change must be in potency to φ . (Definition of change)
- [A2] Causes must “contain” their effects. (Causal Axiom 1)
- [A3] Hence the *cause* of a change must be in act with respect to φ . (From [A2] and the definition of change)
- [A4] Proximate causes must be spatio-temporally concurrent with their immediate effects. (Causal Axiom 2)
- [A5] It is impossible for one and the same thing to be at once in potency and act with respect to the same and according to the same. (Application of the Law of Non-Contradiction to potency and act)

Therefore: Anything that changes must be changed by another.

Scotus accepts the two causal axioms used in the Modal Argument. The justification for [A2] is derived from the principle *Nemo dat qui non habet*, itself derived from the metaphysical first principle *Ex nihilo nihil fit*: if the effect did not pre-exist in the cause, then its existence is something completely new, not indebted to what preceded it, and thereby incapable of explanation—which is impossible. Now the agent that induces a form in a recipient subject has some causal power to do so, and causal powers are themselves rooted in forms. Hence an agent exercises its causality by

¹¹ See notes 4 and 8 above.

possessing some form in virtue of which it is able to induce a form in a recipient subject. If the induced form is of the same species as the form that informs the agent causally responsible for the effect, the causality involved is said to be *univocal*—otherwise, the causality is said to be *equivocal*, as when the architect has in her imagination the form of the house she is going to build (the form of the house is “contained” or “pre-exists” in the imagination). No matter which kind of causality be involved, [A2] must hold in all cases.

The justification for [A4] depends upon “cause” and “effect” being relative terms, much as “master” and “slave” are. The requirements of proximity and immediacy serve to rule out any kind of separation between the cause and the effect: if there were some spatial or temporal separation, there would have to be some means whereby the causal power of the agent could be transmitted across the intervening spatial or temporal medium—but then this means itself, or the intervening medium, would be identified as the proximate cause of the effect.¹² (This argument rules out action at a distance: see *Phys.* 7.2 243^a3–4.) The link between the proximate cause and its immediate effect is a real relation of causation, where each terminus of the relation must be co-present with the other. Just as a master is not in fact a master unless he be the master of some slave, so too a proximate cause is not in fact a proximate cause unless there be some immediate effect it produces. Thus [A4] must hold in all cases.¹³

The causal axioms, then, are unexceptionable; the definition of change is not open to question; the Law of Non-Contradiction indisputable. Hence the Modal Argument was taken to prove that, for any given change, there

¹² In *QSM* 9 q. 14 n. 4 (WV 7 585a), Scotus mentions an objection to self-change based on this point, namely that “the agent should be in close proximity to the patient, and thereby distinct in position [from the patient], so that the same thing cannot be related to itself.” His response in n. 5 is that identity satisfies [A4] even better than close proximity does (WV 7 585b).

¹³ The spatio-temporal concurrence of cause and effect was also taken to be grounded on Aristotle. See *Phys.* 2.3 195^b17–20 and *Met.* 5.2 1014^a21–23, which Scotus cites in *Ord.* 2 d. 2 p. 2 q. 6 n. 453 (Vat. 7 358) as follows: “the efficient cause in act, and what is caused in act, simultaneously exist and do not exist (*simul sunt et non sunt*).” Scotus also adds another argument as follows: “The point is also clear—even if there were no authoritative passage [from Aristotle]—for an obvious reason: what does not exist, when it does not exist, does not produce something for *esse*.” There is a looser way of talking, in which the object that is identified as the effect can persist without the object that is the cause—the son may outlive the father, the slave the master—but, strictly speaking, these locutions are improper. The son ceases to be a son when the father dies, though the thing that was the son continues to exist, and likewise for the slave.

must always be an independent agent that is the cause of the change. This conclusion was reinforced by its close similarity to another fundamental causal principle, namely that nothing is the cause of itself, which would apparently be violated by the existence of self-change. Therefore, putative cases of self-change, such as the downward motion of a stone, must be explained by citing some extrinsic causal factor responsible for the change in question.

[B] The Primacy Argument

Scotus states the Primacy Argument against self-motion in *QSM* 9 q. 14 n. 2 (WV 7 583a):¹⁴

[The Primacy Argument] is taken from Aristotle, *Phys.* 7.1 [241^b34–242^a17]. Nothing is moved by itself primarily, since then it would not come to rest at the rest of another [thing], because [it would not come to rest] at the rest of a part. For everything mobile has a part, and, that [part] being at rest, it is clear that the whole is not moved primarily. [Therefore, nothing can be moved by itself.]

This argument is “taken” from Aristotle only in a loose sense. Scotus derives the qualification “primarily” from its single occurrence at *Phys.* 7.1 242^a43, where Aristotle remarks that something is not moved *per se* and primarily (ὥστε οὐ καθ’ αὐτὸ κινηθήσεται καὶ πρῶτον), and Scotus’s later discussion of the argument, considered in §5 below, turns on its precise sense. The remainder of the Primacy Argument is derived from a combination of 241^b34–242^a3 and 242^a45–49, producing a composite argument against self-motion based on Aristotle’s text that may be reformulated, with several implicit steps spelled out, as follows:

- [B1] Anything that is moved by itself primarily is unaffected by the fact that another thing¹⁵ is at rest (*ad quietem alterius* = τῷ ἄλλο ἡρεμεῖν). (Definition of “primarily”)
- [B2] Everything capable of motion is divisible (διαρετόν), *i. e.* must have parts, and so be a whole. (Hypothesis)
- [B3] Any part of a whole that is capable of motion being at rest, the whole is not moved primarily. (Definition of “primarily” and “motion”)
- [B4] Wholes are not predicated of their parts. (Definition of “whole”)

¹⁴ Scotus sketches the same argument, even more briefly, in *Ord.* 2 d. 2 p. 2 q. 6 n. 442 (Vat. 7 350–351). The mediæval Latin text of the *Physics* was continuous, not divided as Ross proposes in his edition of the text (with the *textus alter* of Book 7).

¹⁵ For example, a proper part of something counts as “another thing,” a fact that will be important in Scotus’s interpretation of the Primacy Argument in §5 below.

and “part”)

- [B5] A part is “another thing” than its whole, *i. e.* parts differ from their wholes. (by [B4])
- [B6] Anything that is moved by itself primarily is unaffected by the fact that a part of it is at rest (by [B1], [B2], and [B5])
- [B7] Even if some part of a whole that is capable of motion were at rest, the whole could be moved by itself primarily. (by [B6])
- [B8] Even if some part of a whole that is capable of motion were at rest, the whole could be moved primarily. (by [B7])
- [B9] If some part of a whole that is capable of motion were at rest, then the whole both could be moved primarily and could not be moved primarily. (by [B3] and [B8])

Therefore: No whole is moved by itself primarily.

The Primacy Argument, however, permits something to be moved by itself “non-primarily”—either accidentally or incidentally—in that the quantitative whole that is in motion is said to be changed “by itself” because one part of the whole acts upon another part. Thus at least some putative cases of self-motion can be analyzed as cases wherein distinct physical parts of a given whole interact.¹⁶ In *QSM* 9 q. 14 n. 11 (*WV* 7 590a), Scotus points out that defenders of the common position use this strategy to explain what occurs when an animal walks or jumps:

The motion is composed of pushing and pulling, in such a way that the posterior part [of the animal] pushes the anterior [part of the animal], and this push brings the posterior [part] along after itself, and that [part], having been brought along, pushes again, and thus [motion] comes about continuously—in the case of ordinary walking about as well as in the case of jumping. This is manifest to sense-experience in the (unexpected!) case of the inchworm.

Hence the demand for an extrinsic causal factor to explain a putative case of self-change may be moderated to the demand that really distinct interacting parts of the subject be specified, and this permits a non-primary kind of self-change to obtain in the world.

[C] The Continuity Argument

Scotus states the Continuity Argument in *QSM* 9 q. 14 n. 1 (*WV* 7 582b):

¹⁶ Scotus explicitly links the conclusion “anything that moves itself is divided into two [constituents], of which one is primarily the mover and the other primarily what is moved” with *Phys.* 8.5 257^b12–13: see *Ord.* 2 d. 2 p. 2 q. 6 n. 442 (*Vat.* 7 350). This latter discussion, he holds, depends on the Primacy Argument for its force.

Again, [the common position] is argued for by means of [the Continuity Argument] that is suggested in *De an.* 2.5 [417^a3–9]. For [if something could change itself], then it would always act in such a way if it is a natural agent, because that action would not depend on anything external [to the agent]. And in virtue of this [fact], the same thing is [both] the agent and the patient (*passum*). [But] it is clear that the consequent, [namely “the agent would always act in such a way”], is false. [Therefore, nothing can change itself.]

The consequent here is false because there are examples of non-continuous change. Whereas continuous activity—unless interfered with—seems a plausible characteristic to ascribe to, say, the movement of heavy bodies downward, or to hot water cooling itself off, it does not apply to animal locomotion: cats walk, but they also change direction, and indeed stop walking; frogs jump, but not always. Yet if self-change be admitted, one and the same thing—the frog—is both the cause of its jumping and of its resting. This possibility raises two problems about the nature of physical explanation.

First, an appeal to one and the same thing as the cause of incompatible conditions seems to be explanatorily vacuous, tantamount to saying that something changed from one condition to another either for no reason at all or just because it did so. But if this is the case, then the same problem applies to simple cases of apparently continuous self-change: the stone moves downward because it is in the nature of stones to move downward—and this seems to be no explanation at all, but, like Molière’s doctor, “explains” the fact that a certain herb produces sleep by saying that it has a *virtus dormitiva*. Hence self-change explanations fail to be genuine explanations.

Second, there seems to be no difference between the case of the frog’s change from jumping to resting and the case in which the water in a pot placed on a stove changes from tepid to boiling. If self-change explanations be permitted, why do we not say that the water changes itself from tepid to boiling, rather than claiming that it is the causal activity of the stove’s heat that causes the change? Self-change threatens to undermine particular causal accounts of natural phenomena by the possibility that there need be no causal links between objects in order for changes to take place—the world could be an indeterministic muddle, with no cases of real change in it (apparent cases of change being explained rather by self-change on the part of the putative patient).¹⁷ Thus there is no principled way to distinguish

¹⁷ This seems to be the intent of the second objection to Scotus’s fourth general conclusion, reported in *QSM* 9 q. 14 n. 14 (*WV* 7 593a): “Nature has proportioned the active and the passive in the universe to be not always the same [thing] with respect to itself, but to be different with respect to the other [of the pair], as there seems to

genuine from merely apparent cases of transeunt causality, if self-change be admitted.

Aristotle On Self-Change

In addition to the three arguments presented above, self-change was taken to be directly ruled out by Aristotle's texts in a variety of ways. Scotus mentions two remarks that seem to cut against the possibility of self-change in general in *QSM* 9 q. 14 n. 1 (*WV* 7 582b). First, natural unity is incompatible with self-change:

In the text of *Met.* 9.1 [1046^a28–29], the Philosopher says: “Nothing is acted upon by itself, insofar as it is naturally unified,¹⁸ for it is one thing and not another.” Hence it can be asked whether something can be moved by itself. . . On the basis of Aristotle's text, [it is clear that nothing can change itself].

Second, since the potency for change is an active potency, it cannot operate on itself (by definition):

Likewise, in [*Met.* 9.1 1046^a19–28], it appears that a proof derived from the definition of [active] potency is suggested.¹⁹ For [active potency] is the principle of transforming *another*. [Therefore, nothing can change itself.]

Moreover, if we consider only the particular kind of self-change that is in-

be a greater connection among things [in this way]. And so in every case [a greater connection] will be granted [to obtain] with respect to possible perfection in whatever [situation] in which there is some agent, but [the agent] is different from that [which is able to be the patient]*. Confirmation: why did nature not give to everything a principle that is active with respect to every perfection possible for it, so that the connection among things based upon mutual action and being acted upon would thereby be taken away?” (*Reading *passibili* for *possibili*). The initial claim “to be not always the same [thing] with respect to itself, but to be different with respect to the other [of the pair]” seems to mean that it is not always the case that one and the same thing is both active with respect to itself and passive with respect to itself, but a thing that is active differs as regards what is passive with respect to its activity and that a thing that is passive differs as regards what is active with respect to its passivity. Briefly: nature has arranged things so that at least in some cases matching agent-patient roles devolve upon really different things, which produces genuine unity by a reciprocal causal “connection among things.”

¹⁸ “Naturally unified”: *simul natum*, which translates *συμπέφυκεν* (literally “growing together”). See *Met.* 7.16 1040^b15.

¹⁹ The “definition” of active potency is given in *Met.* 9.1 1046^a9–11, which Scotus cites as “the principle of transforming another insofar as it is another”: *principium transformandi aliud in quantum aliud*. There are some complicated textual questions with regard to this passage and Scotus's response to it. See the discussion at the beginning of §7 below.

volved in the downward motion of heavy bodies, our test-case, Aristotle seems to rule out self-motion in the *Physics*, as Scotus recognizes in an objection reported in *Ord.* 2 d. 2 p. 2 q. 6 n. 445 (*Vat.* 7 352–353):²⁰

[The claim that heavy bodies are self-movers] is false and against the Philosopher’s intent in *Phys.* 8.4 [255^a3–18], it seems, where he seems to produce four arguments specifically against this—[namely] (*i*) due to the fact that the heavy [body] is not an animal; (*ii*) due to the fact that it cannot bring itself to a halt; (*iii*) because it cannot move itself with diverse motions; (*iv*) because it is continuous (*i. e.* of the same disposition in the part and in the whole) and as such cannot move itself—and [furthermore], in resolving the question, [Aristotle] says that “natural things only have a principle of being acted upon in respect of motion, and not of doing [anything]” (*[Phys.* 8.4 255^b29–31]).

These four arguments also have a role to play in the larger argument of the *Physics*: the rejection of self-motion for “natural things” is part of the argument for the principle that everything in motion is moved by another, which plays a central role in Aristotle’s regress-argument for the existence of the Prime Mover.

Given the argumentative and textual support for the common position, Scotus’s predecessors concluded that self-change, at least in the case of natural phenomena, was impossible and explanatorily vacuous, diametrically opposed to the received view of the way the world works. Hence, prior to Scotus, most philosophical discussions focussed on two issues. First, it was debated whether the arguments that rule out self-change in the physical world also rule it out in the case of non-physical (or “spiritual”) causes such as the will, a point on which there was no consensus.²¹ Second, physical

²⁰ Scotus refers to the same arguments in *QSM* 9 q. 14 n. 3 (*WV* 7 583b). The recognition of four distinct arguments in Aristotle’s text is not original to Scotus; see for example Aquinas, *In Phys.* 8.4 lect. 7, §§6–8.

²¹ If all change is due to an agent that is really distinct from what is in change, it seems to follow that the will is not the originator of its own acts. But then how can a person be held morally responsible for these selfsame acts? This seems to be the problem Scotus has in mind when he writes in *QSM* 9 q. 14 n. 13 (*WV* 7 592b): “Nor do those [philosophers] holding [the will] to be purely passive, [moving] by the object itself [alone], seem to be able to preserve genuine or full freedom in man, but merely, it seems, the necessity of proceeding in such a way as heat also does in heating, or only being able to be otherwise by chance.” The characterization of the will as “purely passive” is clearly a reference to Godfrey of Fontaines (see note 1 above). Also, see Calvin Normore’s contribution to this volume for a discussion of free will and self-change in the Middle Ages.

investigation sought to identify the really distinct agent and patient in natural phenomena, such as the downward motion of heavy bodies, without having recourse to self-change. Scotus's defense of the reality of self-change as a widespread feature of the physical world was a startling break with tradition.

3. Scotus's General Argument for Self-Change

Scotus's procedure is first to argue that self-change is possible in general, thereafter to consider the reality of self-change in particular cases, and finally to refute the argumentative and textual support for the common position. His "General Argument" for self-change is presented in *QSM* 9 q. 14 n. 4 (WV 7 584b-585a):

Anything active looks to a *kind* of passive thing, not to this passive thing, as its primary object. For example, what in general is able to heat, as well as any given thing that is able to heat, looks to what is able to be heated in general as its primary object, not to this or that [thing that is able to be heated]. Contrariwise, what is passive, *e. g.* what is able to be heated—and this as either [what is able to be heated] in general or any given thing that is able to be heated—likewise looks to what is able to heat as its primary object, not to this or that [thing that is able to heat], but [to what is able to heat] in general. It follows from these points that whatever is contained under the primary object of anything is a *per se* object of the same [thing]: whatever is able to heat looks to whatever is able to be heated as its *per se* object, and, conversely, whatever is able to be heated [looks to] whatever is able to heat [as its *per se* object]. But it is possible that (i) something be active regarding *A* in the same way in which something else is active regarding *A*, and (ii) the same [thing] be passive regarding *A* just as something else is passive regarding *A*. Therefore, that thing in the *ratio* 'active' has itself as object in the *ratio* 'passive' just as much as [it has] something else [that is passive as its object].

Scotus's General Argument, stripped to its essentials, may be reformulated as follows:

- [1] The primary object of a potency for φ , whether active or passive, must be common.
- [2] Whatever is contained under the primary object of a potency must be a *per se* object of the same potency.
- [3] It is possible for one and the same thing to have an active potency for φ and a passive potency for φ .

Therefore: It is possible for one and the same thing to be the passive *per se* object of its own active causal potency.

The argument is called “general” because it only establishes the possibility of self-change, not its reality. The intent of the General Argument should be clear: potencies are directed toward kinds of individuals, and there is no reason why an individual with a given potency should not fall under the general kind toward which the potency is directed, and so possibly be the recipient of its own causal activity. In order to appreciate how the General Argument rigorously proves its conclusion, we have to take a closer look at four technical notions: (i) the distinction between active and passive potencies; (ii) the *per se* object of a potency; (iii) a *ratio*; (iv) the primary object of a potency.

As regards (i): the distinction between active and passive potencies is roughly equivalent to the modern distinction between *abilities* and *capacities*, respectively: an ability or active potency enables its possessor to do something, whereas a capacity or passive potency enables its possessor to be the recipient of some action. (The locution “potency for φ ” is deliberately ambiguous between an active or a passive potency.) All potencies, whether active or passive, are defined by their corresponding actualizations—what the potency is a potency *for*. An active potency, when actualized, operates on a patient; a passive potency, when actualized, is operated on by an agent.

As regards (ii): whatever most strictly counts as the patient (in the case of an active potency) or the agent (in the case of a passive potency) is the “*per se* object” of the potency.²² For example, when Jones sees a black sheep, his passive potency of vision is actualized by the particular blackness of the sheep’s wool, strictly speaking, which is therefore the *per se* object of his vision; the sheep itself is “seen” only accidentally or incidentally. Hence the *per se* object of a potency is something particular, either a particular substance or a particular accident in the world.²³

As regards (iii): a “*ratio*” is a generalization of the strict notion of “def-

²² The notion of a “*per se* object” of a potency is derived from Aristotle’s discussion in *De an.* 2 of the “objects” of the various senses, which are themselves potencies of the sensitive soul.

²³ Scotus holds that there are particular accidents, that is, individuals in categories other than Substance. However, accidents are not individuated by their bearers, since an accident need not inhere in anything (as witnessed in the Eucharist): it is by nature able to inhere in a substance, and in the ordinary course of events actually does so inhere, but it is capable of independent being. An absolute accident, for Scotus, is individuated by a haecceity, by its very “thisness”; a non-absolute accident by the particulars it involves.

inition”: a *ratio*, like a definition, picks out the feature or set of features that make something to be what it is.²⁴ All definitions are *rationes*, but not conversely: there are things that lack strict Aristotelian definitions yet have an “intelligible content,” a set of features that make them to be what they are—accidental unities, the four causes, potencies, and the like—and these have *rationes*. A potency cannot have a strict Aristotelian definition, but it does have a *ratio*, and the *ratio* of a given potency spells out that in virtue of which it is the potency it is (*e. g.* the potency for φ rather than the potency for ψ).

As regards (*iv*): by combining (*ii*) and (*iii*), we can ask what the *ratio* of the *per se* object of a given potency is—the feature or set of features in virtue of which the *per se* object of a given potency is the *per se* object of that potency—and so work toward a definition of the “primary object” of a potency. While a *per se* object is always something particular, such as the blackness of the sheep’s wool, the *ratio* is a feature that may be common to many particular objects. By definition, the *ratio* according to which the blackness of the sheep’s wool actualizes Jones’s passive potency of vision is the feature in virtue of which the blackness of the sheep’s wool actualizes Jones’s vision. In this example it is the *ratio* ‘black’ (since Jones can see all black things) or, trivially, the *ratio* ‘visible’ (since Jones can see all visible things). The *ratio* of the *per se* object of a given potency must be intimately related to the *ratio* of the potency itself—that which makes the potency what it is. To specify adequately the *ratio* of the *per se* object of a potency, however, is not a matter of simply reading it off the *ratio* of the potency: to say that Jones’s vision is actualized by anything visible is true but trivial, since “visible” is a relational term that means “able to actualize the faculty of vision.”²⁵ Nor is it a matter of simply reading it off

²⁴ The term *ratio* translates $\lambda\acute{o}\gamma\omicron\varsigma$ and shares many of its characteristics and ambiguities. Just as definitions have scope, so too do *rationes*: we may speak of “the definition of man” or “the definition man,” and equally of “the *ratio* of the active” or “the *ratio* ‘active.’” The features picked out by a *ratio*, like the features picked out by a definition, are those in virtue of which something is what it is, and hence are the features that make it intelligible. A *ratio* therefore has some resemblance to an abstraction-operator: the *ratio* ‘black’ picks out the property of blackness, for example, and the *ratio* ‘man’ picks out rationality and animality. Concrete objects possess the features by which they fall under a *ratio*—the sheep falls under the *ratio* ‘black’, because blackness inheres in the sheep, in virtue of which the sheep is black.

²⁵ In *Ord.* 1 d. 3 p. 1 q. 3 n. 183 (*Vat.* 3 111), just before the definition of “primary object” cited below in the text, Scotus rules out any relational specification of the *ratio* of the *per se* object of a potency, as follows: “I state that the ‘*ratio* of the object’ is that according to which the object is capable of moving the potency [to act], as the

the *per se* object: to say that Jones sees the blackness of the sheep's wool in virtue of the *ratio* 'black' is equally true and equally trivial, since it does not point to any more general feature.²⁶ Rather, an adequate assignment of the *ratio* of the *per se* object of a given potency specifies the most common non-relational feature in virtue of which something is a *per se* object of the potency. Specifying this feature depends on the *ratio* of the potency itself. Such an adequate assignment is what Scotus calls the "primary object" of a given potency, as he says in *Ord.* 1 d. 3 p. 1 q. 3 n. 187 (*Vat.* 3 112–113):²⁷

The [feature] that is adequate to the potency, on the basis of the *ratio* of the potency, is assigned as the "primary object" of the potency.

For example, the *ratio* 'color' specifies the most common non-relational

ratio of the active, or of acting, is said to be that form according to which the agent acts. Furthermore, the *ratio* of the object cannot be a relationship to a potency. The Philosopher also speaks in this way in *De an.* 2.7 ([418^a26–30]), where he assigns the primary object of vision. He says: 'That of which it is the sight, *e. g.* [the sight] of the object, is the visible' [and again (*De an.* 2.8 418^a10–17)] '[Yet] not *per se primo modo* but rather *secundo modo*, such that it is put into the *ratio* of the visible.' But if the formal *ratio* of the object of a potency were a relationship to such a potency, then the primary object of vision would be the visible *per se primo modo*, since visibility itself would be the formal *ratio* of the object. And then it would be easy to assign primary objects, since the primary object of any potency would be correlative to such a potency, *e. g.* vision "the visible," hearing "the hearable." And the Philosopher does not assign primary objects of potencies in this way, but rather [assigns] some absolute [things], *e. g.* vision color, hearing sound, and the like." An 'absolute thing' is a non-relational item, either a substance or a quantity or a quality. Scotus in fact uses the relational specification of the primary object of a potency in his presentation of the General Argument, but it is clear that it is only by way of example. One thing is predicable of another *per se primo modo* when the predicate is contained in the definition of the subject, and *per se secundo modo* when the subject is contained in the definition of the predicate.

²⁶ In a later annotation to *Ord.* 1 d. 3 p. 1 qq. 1–2 n. 24 (*Vat.* 3 17), Scotus remarks: "The *per se* object [of a potency] is clear from the acts of the potency; the primary object, however, is derived from many *per se* objects, because [the primary object] is adequate." Scotus clearly has the commonness of the *ratio* in mind here when he says "adequate."

²⁷ Scotus takes notion of "primacy" at work here from *An. post.* 1.5 73^b32–74^a3, where Aristotle writes: "An attribute belongs to a subject universally when it can be shown to belong to anything whatsoever belonging to that subject and to belong to that subject primarily. . . . The universal is that which can be shown in anything whatsoever and primarily. . . ." In *Ord.* 1 d. 3 p. 1 qq. 1–2 n. 49 (*Vat.* 3 49), Scotus explicitly states that "primarily" in this passage expresses priority "in the order of adequacy," which he also terms "the order of precise causality"—a sense he will use extensively in his discussion of the Primacy Argument (see §5).

feature in virtue of which anything can be the *per se* object of the passive potency of vision, and is therefore the primary object of vision—a fact that can be established on the basis of the *ratio* of vision.

The rigorous force of the General Argument should now be apparent. The notions of “*per se* object” and “primary object” can be applied to both active and passive potencies, and specifically to active causal powers and passive potencies to receive causal activities. The premisses [1] and [2] hold by definition: the primary object of any potency whatsoever must be common, since a *ratio* is able to apply to many particulars, whether it actually does so or not; the features specified by the *ratio* are predicable *in quid* of these particulars, and hence they are *per se* objects of the potency.²⁸ For example, it seems plausible that all bodies can be heated, and that at least some bodies actually heat others (*e. g.* a brick recently removed from an oven). Hence *body* is, or at least falls under, the primary object of both the active causal power for heating and the passive potency to be heated. Thus a hot brick can exercise its active causal powers by heating up some body, which will be its *per se* object. But that is compatible with the hot brick itself having the passive potency to be made even hotter—say, by putting it back in the oven—and thus to be the *per se* object of the active causal power of the oven to heat things up, including bricks. Hence it is possible for one and the same thing to be both active, as regards the induction of a form in an object, and passive, as regards being receptive of the same form in itself, as [3] says. One and the same thing can fall under both the *ratio* ‘active’ and the *ratio* ‘passive’. Thus it is at least possible that one and the same thing be the recipient of the form that it induces in another.²⁹

²⁸ To be predicable *in quid* is to be predicable of something as a way of spelling out *what* the subject is—a form of essential and substantial predication. Scotus asserts that [1] and [2] are clear “on the basis of the primary relation that holds among the common [terms],” *i. e.* are true by definition, in *QSM* 9 q. 14 n. 4 (WV 7 585a). He states a version of [2] with respect to cognitive potencies in *Ord.* 1 d. 3 p. 1 q. 3 n. 118 (*Vat.* 3 73): “Whatever is known *per se* by a cognitive potency is either its primary object or is contained under its primary object.” It should be noted, however, that Scotus’s views are more complex than I have made them out to be in this discussion. In *Ord.* 1 d. 3 p. 1 q. 3 n. 127 (*Vat.* 3 79–80) and in *Quodl.* 5.26 (Alluntis [1968] p. 179) Scotus distinguishes two kinds of “adequacy” for the primary object of a potency: (*i*) according to commonness, such that the primary object can be predicated of the *per se* object of the potency; (*ii*) according to virtuality, such that the primary object has the power to produce all the acts of the potency in question. In (*i*) the “object” may be a common *ratio* rather than a particular object, as color is the primary object of vision; in (*ii*) it may be either common or particular.

²⁹ This argument is adapted from Scotus’s proof of the minor premiss of the General Argument in *QSM* 9 q. 14 n. 4 (WV 7 585a–b). See the clarifications in the next

Now the example of the hot brick obscures an important point—not least because bricks do not heat themselves up! The reason they do not do so is that the induction of the form *heat* in a recipient subject takes place through the possession of the same kind of form in the hot brick—that is, the causality in question here is univocal. More exactly, causation is univocal when the induced form is specifically the same as a form contained in the cause, and equivocal otherwise.³⁰ Self-change is only possible in cases of equivocal causality, as Scotus argues in *Ord.* 1 d. 3 p. 3 q. 2 n. 514 (*Vat.* 3 303–304):³¹

When it is argued that the “possible” [as in the conclusion of the General Argument] cannot have any causality, since nothing acts upon itself—

I reply that the proposition [“Nothing acts upon itself”] is only true as regards a *univocal* agent, and that the proof of [this proposition], [namely] that then the same thing would be in both act and potency, goes through only when the agent acts univocally, *i. e.* [the agent] induces in the patient a form of the same *ratio* as that [form] through which [the agent] acts. For if something were to act upon itself in this manner, then it would have at once a form of the same *ratio* as that toward which it is moved, and when it is moved to that [form] it would also lack it [by the definition of “change”]; therefore it would at once have it and not have it—at least, this follows for two forms

paragraph.

³⁰ If the induced form is numerically the same as the form contained in the cause, it is *a fortiori* specifically the same, and hence the causation is univocal. (See note 31.) Scotus is only concerned with specific sameness, since he holds that the objects of potencies are all specific in nature. It should be noted, though, that Scotus leaves the sense in which the form is “contained” in the cause deliberately vague: a form may be contained in the cause by informing the cause (either as a substantial or an accidental form), by being present in the imagination (as with an artificer), or, in general, by being able to be produced by another form that is more “perfect” or “eminent.” This allows [A2] to be satisfied in the case of equivocal causation. See the discussion in §4 of virtual containment (p. 26 below, and especially note 42).

³¹ Scotus initially asserts that the requirement of equivocal causality is clear on the basis of the General Argument, in *QSM* 9 q. 14 n. 6 (*WV* 7 586a), but then goes on to prove it as his Second Particular Conclusion in n. 7 (*WV* 7 586b). His proof—that if the causality were univocal then there would be two distinct individuals of the same species in a single subject—is based upon his rejection of this point in *QSM* V q. 7 (*WV* 7 232a–246a). However, in this discussion Scotus argues that this is *naturally* impossible because it cannot come about through change, a point he makes more clearly in the passage cited from the *Ordinatio*. God could make two individuals of the same species in a single subject, but only through creation and not through change.

of the same species, or for the same [form]. However, in *equivocal* agents (*i. e.* in those agents that do not act by means of forms of the same *ratio* as that toward which they act) the proposition that nothing moves itself has no necessity, nor does its proof, [namely] that something would be in potency and in act in respect of the same, establish anything: for in this case the agent is not formally in act in the way in which the patient is formally in potency.

In order for there to be a case of change, much less self-change, the subject must initially be deprived of the form, as stated in (3a) in §1 above; hence univocal self-change is impossible. Equivocal self-change, however, is another matter.³²

Therefore, self-change is in general possible when the following two conditions are satisfied, as Scotus writes in his First General Conclusion in *QSM* 9 q. 14 n. 5 (*WV* 7 586a):

And so it should be held as a rule that, in every case, something is only able to act upon itself when those two [conditions] occur together—namely (*i*) that it possesses a form that is a principle of acting equivocally, and, along with this [condition], (*ii*) that it is receptive of the terminus of such an action.

What kinds of self-change are possible? Scotus rules out cases of substantial

³² Scotus offers a confirmation of the General Argument explicitly based on equivocal causality, in which the possibility of self-change is analogous to the possibility of two objects each inducing the same form in the other, in *QSM* 9 q. 14 n. 5 (*WV* 7 586a): “If *A per se* were a form that is active with respect to *B*, and *A* were to exist in *C*, nobody denies that it is active with respect to *B* coming to exist in *D*. And, conversely, if *A* were to exist in *D*, it would be a principle that is active with respect to *B* in *C*. Therefore, if *A* exists in *C* and in *D*, then *C* as well as *D* would be in potency to *B*, and both *C* and *D* will mutually act upon one another according to *A*, mutually producing *B* in one another. Yet [this first case] ([namely] that the same thing in the same respect is [both] active and passive according to the same) appears to be unacceptable to the extent that [the second case] ([namely] that the same thing [is both active and passive] with respect to itself) [is unacceptable]. (For it is similar to other [situations]: just as nothing is the cause of itself, so too a circle among causes, so that the same thing in the same respect is both the cause and what is caused, is not possible.) Therefore, if the first case is possible, then the second case [is possible] as well.” Mutual equivocal causality of the sort described here is conceptually on a par with self-change: if an object *C* has a form *A* that equivocally causes the form *B* in a recipient subject, then it is possible for *C* to be the subject in which *B* is induced. The loop through a second object, *D*, is unnecessary. There seems to be a problem, says Scotus, only because the case at first glance seems to be similar to a different situation, one that is prohibited by the principle that nothing causes itself (as noted in discussing the conclusion of the Modal Argument in §2 above).

generation: nothing can be the cause of its substantial form.³³ However, it is possible for growth and locomotion to be the result of self-change: neither quantity nor place is an “active” form, *i. e.* a form possessing active causal powers, and hence these forms can only be induced by equivocal causality. Alteration (*i. e.* qualitative change) may also be a case of self-change: some qualities are “non-active,” and other active qualities may be produced by equivocal causes.³⁴

4. Scotus’s Response to the Modal Argument

According to Scotus, then, self-change is possible when one and the same thing both has a form φ that grounds the active causal potency to cause equivocally another form φ , and also is in passive potency to receive φ . The conclusion of the General Argument directly contradicts the conclusion of the Modal Argument. Where is the flaw in the Modal Argument?

Scotus holds that [A5], the application of the Law of Non-Contradiction to potency and act, is the culprit: for Scotus, “potency” and “act” carry several senses, not all of which are incompatible with each other. Furthermore, the sense in which [A5] fails is paralleled by a failure of [A3] for the equivocal causality required for self-change. In general, then, the Modal Argument goes astray by conflating various distinct ways in which something can be in potency and in act; the sense in which [A3] and [A5] hold do not exclude the possibility of self-change. A brief sketch of Scotus’s account of modality, presented at length in *QSM* 9 qq. 1–4, will provide the theoretical background relevant to Scotus’s response to the Modal Argument.

Scotus holds that the central distinction in the analysis of modality is between a modality as a *mode of being* (which we may call “modal” modality)

³³ It is clear that nothing can be the cause of the substantial form that it possesses, for that would be an instance of univocal causality. But why could an object not be the cause of having a new substantial form, one “higher” in the hierarchy of substantial forms? Scotus’s reason, which may resonate all the way to Descartes, is presented in *QSM* 9 q. 14 n. 7 (*WV* 7 586b): “No [substantial form] can newly advene so that it makes a composite that is one *per se*, unless that [form] is more perfect than any given beingness (*entitas*) preceding it. However, the more imperfect is not a principle that is active with respect to the more perfect.” Scotus does not consider the case of substantial corruption—something causing itself to have a “lower” substantial form—since the explanation of corruption does not parallel that of generation: corruption is essentially a passive process undergone by the subject.

³⁴ Scotus’s claims about quantities, qualities, and places are put forward in *QSM* 9 q. 14 n. 6 (*WV* 7 586b). The notion of an “active” quality is taken from Aristotle, *De gen. et corr.* 2.2 329^b19–22.

and a modality as a *principle* (which we may call “pricipiative” modality), as he states in *QSM* 9 qq. 1–2 n. 2 (*WV* 7 530b):

It is necessary to draw a distinction with regard to potency: in one way, “potency” expresses a certain mode of being; in another way, [“potency”] specifically brings in the *ratio* of a principle.

The two kinds of modality may be intertranslateable, but they are nonetheless distinct.³⁵ Thus the pure modal contexts:

x is in potency to φ

x is in act as to φ

are therefore ambiguous, depending on the kind of modality they are taken to involve.³⁶ We shall consider each kind of modality in turn.

³⁵ Scotus comments on their intertranslateability immediately after his statement of the distinction, in *QSM* 9 qq. 1–2 (*WV* 7 530b): “Now it is doubtful on which of these the name [”potency”] was initially imposed and thereafter transferred to the other. Yet if [“potency”] was initially imposed in order to signify a certain mode of being, [then], since this is suitable to such a being only through some principle belonging to it by means of which it can exist, the name “potency” can appropriately be transferred to the principle, as [transferred] to that by which the possible can exist—[taking] “by which” [in “that by which the possible can exist”] not formally, but rather causally. Likewise, if [“potency”] was initially imposed on the principle by means of which a thing can exist, it can be transferred in order to signify generally a mode of being (*modus essendi*) similar to that which the principiatum has in the principle.” Strictly speaking, the two kinds of modality are distinct, but they are connected in the manner that Scotus describes such that the same term can apply to both with equal propriety.

³⁶ Ascriptions of potency are inherently *relational*, as Scotus argues in *QSM* 9 qq. 1–2 n. 4 (*WV* 7 532a–b): “For some [things] to be opposed “relatively” can be understood in two ways: either (a) mutually, namely that each has a relationship *per se* to the other, or (b) non-mutually. . . Now act and potency are *not* opposed [mutually]. The reason for this is that, because such [mutually related] things are simultaneous in nature and definition, it would then follow that act would not be prior in *ratio* to potency; neither would the *ratio* of potency be taken from act rather than conversely, which is contrary to Aristotle (*Met.* 5.8). [Act and potency] *are* opposed [non-mutually]. The reason for this is that, in considering the significate of the name “potency,” it is clear that “it expresses an order to act, and the order is essentially a respect to act. Therefore, insofar as [potency] is the kind of thing that has a respect essentially to something else, it is not opposed to that “something else” except relatively. But the converse [of this claim] is not the case, since the *ratio* of act is absolute, as has been proved from the Philosopher’s intent ([*Met.* 5.8]). Furthermore, there is a clear example of how there can *per se* be a relation to something absolute according to the Philosopher in *Met.* 5.15 [1021^a29–32]: knowledge is essentially referred to the knowable, but not conversely; therefore, the knowable is absolute, insofar as there is a relation of knowledge to it. Indeed, *being referred to* is not the same as *being the terminus of a relation*.” Such “non-mutual relations” fall under Aristotle’s third class of relatives (*Met.* 5.15). For a clear and sensible discussion of Scotus’s theory of

Modal Modality

Scotus discusses modality as a mode of being in *QSM* 9 qq. 1–2. Now a “mode of being” is a *way* in which something can be said to be, either as a “potential being” or as an “actual being.” If the pure contexts above are interpreted as referring to modal modality, they could naturally be reformulated as the following:

x is a potential φ

x is an actual φ

and from this reformulation it is but a short step to:

φx is a potential being

φx is an actual being

Scotus holds that there are two distinct conditions that have to be satisfied in order for φx to be a potential being in the sense relevant to metaphysics:³⁷

[MP1] The essence of φx is possible, that is, there is no incompatibility among the features that constitute φx

[MP2] The essence of φx is logically and strictly prior to the existence (*esse*) of φx

An ascription of modal potency is in fact a disguised relational claim: it is to assert that there is a non-actual possible being defined in terms of its actuality, what we might think of as a merely possible being. The sense of “possible” that enters into [MP1] is a matter of metaphysical consistency, grounded on the *ratio* of each constituent of φx .³⁸ The “strict logical prior-

relations, see Henninger [1989] Chapter 5.

³⁷ Scotus formulates these two conditions in *QSM* 9 qq. 1–2 n. 5 (*WV* 7 533a): “Metaphysical potency taken precisely, namely as it abstracts from all natural potency, is founded precisely in an essence that is called a possible being (*possibilis esse*), and the order of that essence to *esse* is as though to a terminus. . . Furthermore, each of the two, [namely (*i*) the essence that is a possible being and (*ii*) the *esse* of this essence], can be denominated by this potency, which exists “between” them: [it denominates] (*i*) as though it were the subject, and (*ii*) as though it were the terminus.” Scotus deliberately refuses to discuss the ontological status of the merely possible being that is the foundation of the relation of modal potency, in *QSM* 9 qq. 1–2 n. 6 (*WV* 7 534a-b): “But there is a great difficulty concerning the foundation of [modal potency]—[namely] what sort of ontological status (*entitas*) does [the foundation] have before it exists?—and [this difficulty] ought not to be investigated here, for [the answer] would perhaps seem more diffuse and prolix than the principal [question].” However, he does assert that “the metaphysical potency in the possible essence is postulated to be some ontological status of a sort that is not in a chimaera.”

³⁸ Scotus distinguishes such “metaphysical consistency” from mere logical possibility (“logical potency”). The latter is fundamentally a semantic notion, as Scotus asserts in *QSM* 9 qq. 1–2 n. 3 (*WV* 7 531b): “[Logical] potency is a certain mode of composition: it is produced by the intellect [and] caused from the disposition (*habitus*) of the terms

ity” in [MP2] involves two claims: the *ratio* of the possible being is derived from its existence, and the possible being does not exist.³⁹ Therefore, it is clear that modal potency, defined by [MP1] and [MP2], is “does not obtain along with act as regards the same [subject],” as Scotus says in *QSM* 9 qq. 1–2 n. 3 (*WV* 7 532a): everything (taken widely) is either a potential being or an actual being, but not both.

Scotus takes modal potency to be central to physics, because he holds that the definition of “motion or change” in *Phys.* 3.1 201^a11–12 as “the actualization of a potential to the extent that it is potential” should be understood in terms of modal potency and modal act. Two distinctions regarding modal potency are relevant to his analysis: the distinction between *objective* and *subjective* modal potencies, and the distinction of subjective modal potency into *simultaneous* and *successive*. Roughly, something is in objective modal potency if the whole of it is merely possible, whereas it is in subjective modal potency if the subject already exists although the terminus (usually some form) does not.⁴⁰ For example, the non-existent

of that composition (namely that [the terms] are not incompatible). Although some real potency in the thing commonly corresponds to [logical potency], nevertheless this does not pertain *per se* to the *ratio* of [logical] potency.” Logical possibility is to be distinguished from genuine metaphysical consistency, which is not a property of terms but of real things (or features of things), as Scotus goes on to point out (*WV* 7 531b–532a): “In one way, [‘metaphysical potency’] is opposed to ‘impossible’—not as it expresses a mode of composition (as in the case of [logical potency]), but rather as it expresses the disposition of something incomplex, in the way in which, according to Aristotle (*Met.* 5.29 [1024^b26–27]), some *ratio* is called false in itself because it includes a contradiction. The possible converts with being as a whole in this fashion, for the reason that nothing is a being whose *ratio* includes a contradiction.” The text of Aristotle to which Scotus refers is λόγος δὲ ψευδὴς ὁ τῶν μὴ ὄντων ἢ ψευδὴς, rendered into Latin by William of Moerbeke as *ratio vero falsa est quae non entium inquantum falsa*. Scotus interprets ‘*non entium*’ as referring to the “contradictory things” described immediately before (1024^b25–26). Scotus denies that mere logical possibility entails a corresponding metaphysical modal potency in *QSM* 9 qq. 1–2 n. 6 (*WV* 7 534a); semantic consistency may not reflect genuine metaphysical consistency. Therefore, all beings (in this sense) are metaphysically consistent, and those that are non-actual but ordered to act are potential beings.

³⁹ Scotus’s notion of a “potential being” can be given a close parallel in modern possible-worlds accounts of modal semantics: to say that φx is a potential being is to assert that φx exists in some possible world and to assert that the possible world in question is not the actual world—a relational claim. Scotus’s analysis of modal potency in terms of metaphysical consistency is exactly on a par with modern accounts that presuppose the existence of possible worlds to offer a semantics for modality.

⁴⁰ Scotus offers technical definitions of objective and subjective modal potency in *QSM* 9 qq. 1–2 n. 8 (*WV* 7 536a–b): “Now since every formal act is *esse*, by extending *esse*,

twin brother of Socrates is in objective modal potency, whereas Socrates himself is in subjective modal potency to becoming white. Since all cases of change involve a persisting substratum, the definition of change involves only subjective modal potency. Subjective modal potency can be either simultaneous or successive, depending on whether the subjective modal act that is incompatible with the subjective modal potency is also incompatible with further subjective modal potency (by “using up” the potency): if so, the subjective modal potency is simultaneous, and if not, successive.⁴¹ The distinction roughly corresponds to that between potencies whose actuality spans a continuous range and those whose actuality is a fixed endpoint. For example, a brick has the subjective modal potency to be hot, and even while this potency is being actualized—while the brick is heating up another 10°, say—the brick retains the “further” potency to be heated to a higher temperature; hence this subjective potency is therefore successive. On the other hand, the brick’s subjective modal potency to be exactly 91° is a po-

then, some *esse* can belong to something either simply or in a respect—whether [the *esse*] is proper or whether it is not proper but rather as though extrinsic. But this [modal] potency will be twofold with respect to the [following] primary division: (a) some [modal potency] is for proper *esse* and simply belongs to that which is in potency; (b) other [modal potency] is for extrinsic *esse*, as though in a respect belonging to that which is in potency to that *esse*. Now (a) is characteristic of any given substantial or accidental essence as regards its first *esse*, and is founded in that essence of which it is the proper *esse*. Indeed, just as the essence of an accident or whiteness is in potency to its proper *esse*, so too the essence of a soul that is to be created is in potency to its *esse*. Now (a) is most properly a differentia of being, and (a) can be called “objective potency” to the extent that the whole is in potency to existence, and not in act, as its subject as well as its terminus. . . Now (b) is not characteristic of any given being, since it belongs to only that which, apart from its proper *esse*, is naturally apt to receive another *esse* than [its proper *esse*]; and thus, when it does not have that [other *esse*], it is in potency to it. For example: a body that is not white is in potency that it be so—not simply [that it be], but rather that it be white, which is its *esse* in a respect and as extrinsic. And (b) can be called “subjective [potency]” in this way.”

⁴¹ Scotus’s technical definitions of these notions in *QSM* 9 qq. 1–2 n. 9 (*WV* 7 537a) cites his earlier definition of them for the case of objective potency in n. 8 (*WV* 7 536b–537a): “According to the diversity of essences, potency is for the act to be received, in diverse ways: sometimes as a whole simultaneously, as the essences of permanent [things] are naturally apt to receive *esse*; at other times successively, such that the potency for a further act always obtains along with the act terminating the potency, as in the case of successive [things], such that in that case the act opposed to the potency never succeeds it simultaneously.” Scotus then remarks that subjective modal potency is divided into simultaneous and successive because “just as any essence that informs something is reduced to its proper *esse* simultaneously or non-simultaneously, so too what has been informed is reduced to the same *esse* as though it were [something] participated in.”

tency that exists at all temperatures less than or greater than 91° , and does *not* exist when the brick is exactly 91° ; this subjective modal potency is therefore simultaneous. Scotus holds that Aristotle's definition of motion or change involves two distinct subjective modal potencies, one simultaneous and directed toward the terminus, the other successive and directed toward the process of change, as he explains in *QSM* 9 qq. 1–2 n. 11 (*WV* 7 539a–b):

Subjective [modal potency] is that which is put into the definition of motion; the [subjective modal potency] is not for the motion, but rather for its terminus. The reason for this is that the [modal potency for the motion exists before the motion, and thus it is eliminated when the mobile begins to be moved—namely, as [the modal potency] is naturally apt to be eliminated: not as a whole all at once, but rather successively. Motion is an act with respect to this [modal] potency. But along with this act there obtains the [modal] potency for the terminus, which either (*a*) was not present before the motion, or (*b*) was present before [the motion]—which I believe to a greater extent as regards that metaphysical subjective potency—but it is not reduced to act immediately by a natural agent, unless that [modal potency] for motion were previously reduced [to act].

A case of change thus involves the potency to *be* φ and the potency to *become* φ . If a brick changes from 75° to 91° , it must have the potency to be 91° and also the potency to become 91° . The process of changing – the change itself—is the actuality of the brick's becoming 91° , which ends when the brick reaches 91° . On the one hand, the subjective modal potency for the change is successive: the clause “to the extent that it is potential” in Aristotle's definition refers to this subjective modal potency. On the other hand, the subjective modal potency for the terminus of the change is not successive but rather simultaneous: it remains an unactualized potency throughout the process of change and is incompatible with the final modal actuality of the terminus. Thus Aristotle's definition may be reformulated as follows:

Change is the modal act of a successive subjective modal potency for the change, insofar as this modal act exists along with a simultaneous subjective modal potency for the terminus.

Both modal potencies involved in change may exist prior to the change, and both will be destroyed when the change reaches its terminus.

Yet in spite of the prominent role of modal modality in the definition of motion, the Modal Argument, if taken as referring to modal modality, fails: [A5] holds but [A3] does not. The Law of Non-Contradiction holds when reformulated in terms of modal potency and modal act:

[A5*] It is impossible for one and the same thing to be at once in modal potency and modal act in the same respect.

Nothing is both merely possible and also actual, as we might summarize [A5*]. But the corresponding reformulation of [A3]:

[A3*] The cause of a change must be in modal act with respect to the form it induces.

does not hold when the causality is equivocal. In such a case, the subject is informed by a form φ which causally induces the form ψ in its recipient, and the subject contains ψ in modal potency. Hence the subject is in modal act with respect to φ and the recipient is in modal potency with respect to ψ , and these are not ruled out by [A5*], even when the recipient and the subject are one and the same. To argue that the subject would also be in modal act as regards the equivocal effect it induces would be to commit a fallacy of the consequent, as Scotus says in *QSM* 9 q.14 n.18 (*WV* 7 596a–b):

If “potency” be taken as opposed to act (as the discussion in *QSM* 9 qq. 1–2 considered it), [then] the same thing is never together in [modal] potency and in [modal] act in the same [respect]. For when water is actually hot, at that time it is not actually cold, but only potentially [cold]. And there is a fallacy of the consequent when one argues [as follows]: “If [water] is able to move itself to coldness, it is therefore in [modal] act in the way in which what is able to be moved is in [modal] potency” (understanding [“in act”] as regards formal [modal] act), for [the corresponding argument]: “The Sun is able to change matter through putrefaction into the form of a worm; therefore, the Sun is a worm in [modal] act” does not follow.

The agent of an equivocal change is not in formal modal act as regards its induced effect, but only in formal modal act with regard to the principle from which its equivocal causal power stems. Now [A2] requires that the equivocal cause “contain” its effect in some fashion. Given that a univocal cause is sufficient to produce its univocal effect, where the induced form also informs the cause, a “more excellent” or “eminent” form is that much the more sufficient: the eminent form that informs the cause can be said to contain *virtually* the induced form it produces equivocally, and so to be in “virtual act” as regards the induced form, but not in formal act as regards the induced form.⁴² This is the answer Scotus briefly sketches in *QSM* 9

⁴² To say that x “virtually contains” φ , or that x is in “virtual act” as regards φ , is to say no more than that x has the causal power to produce equivocally φ —that x has a certain causal power (*virtus*). I propose we understand Scotus’s use of “virtual” in these cases as a placeholder: there is no general answer to the question how x

q. 14 n. 18 (WV 7 596a-b), immediately following the passage cited above:

Indeed, if sometimes an active perfection⁴³ is sufficient to produce an effect of the same *ratio* as that which is in the effect, how much more sufficient is the more excellent? And so any given equivocal agent is in [modal] act with respect to its effect, not formally having a similar [modal] act (for then it would not be an *equivocal* agent), but virtually having [a similar modal act], namely because it formally has a more eminent [modal act]. Hence [the question might be raised]: according to what is [the agent] in [modal] act and according

contains φ . In the case of a builder building the house, for example, the builder virtually contains the house by having the form of the house in her imagination, and this phenomenon—"having a form in the imagination"—is open to philosophical and scientific investigation. The determination of causal powers is not a matter to be settled *a priori* by the metaphysician. There is a striking anticipation of Scotus's vocabulary, though not of his doctrine, in a text with which Scotus was assuredly well-acquainted: in response to the question whether a subject could be the adequate *per se* cause of its own accidents, Henry of Ghent replies (*Quodl.* 10 q. 9 221.14–24): "It should be stated that the question at hand is generally about the efficient cause of an accident, but specifically about the accident that is the very act of willing: how it could be caused by the will itself, which is its subject. And there is a reason for doubt in this case, since the subject is the material cause with respect to its accident. Thus, although it is in act as regards substantial form, nevertheless insofar as it exists in itself it is only in potency to accidental form—and hence it necessarily acts by means of something existing in act in the way in which that [subject] is in potency, by means of which it is reduced from potency to act. However, I state that [it acts] by means of something existing in act as such, at least in virtual [act] even if not in form, just as the Sun, which is hot in potency, produces heat in virtual act, even if it is not formally hot." The Sun cannot itself be hot, since *being hot* is a property of corruptible bodies. Scotus uses the very same example in *QSM* 9 q. 14 n. 22 (WV 7 600a) while answering an objection about formal potency and virtual act: "I reply generally on the basis of the definition (*ratio*) of virtual [act] and formal act. . . *being hot* is formally incompatible with the Sun, since it is a quality that is proper to a corruptible body, and consequently the Sun is not a subject that has a capacity for it. (Neither does fire have a capacity for whiteness, which is a quality proper to mixed [bodies].) But it is not the case on that account that the Sun does not have the capacity for heat, since [the Sun] is virtually hot. Indeed, it is clear that Saturn, which is held to be virtually cold, does not have the capacity for heat formally any more than the Sun does." Scotus also discusses this example in *Ord.* 1 d. 3 p. 3 q. 2 nn. 519–520 (*Vat.* 3 308–309) and *Op. Ox.* 2 d. 25 q. unica n. 14 (WV 13 208b–209a). It seems likely that Scotus adopted Henry's terminology while modifying his theory.

⁴³ A "perfection" is, roughly, a feature such that it is better to have it than not to have it. Forms are perfections when their possession "perfects" the agent, and this is settled objectively by the nature of the agent in question. Here Scotus means no more than that an agent may have an active causal power or an active principle consonant with its nature.

to what is it in [modal] potency? I answer: it is in [modal] potency according to the terminus of the motion, [and] it is in [modal] act according to the active principle that is equivocal with respect to the terminus [of the motion].

Now talk of causal “powers” and “active principles” is a part of the second kind of modality Scotus recognizes, namely principiative modality.

Principiative Modality

Scotus discusses modality as a principle extensively in *QSM* 9 qq. 3–4. Now a “principle” is a metaphysical constituent of something, one from which something results as its principiatum (as described in §1 above). Hence principiative modality is a real feature of something, on the order of an ability or capacity on the one hand, and the exercise of the ability or capacity on the other hand. If the pure modal contexts “ x is in potency to φ ” and “ x is in act as to φ ” are interpreted as referring to principiative modality, they could naturally be reformulated as the following:

x has the potency to φ

x has an act as to φ

and from this reformulation it is but a short step to:

x has the principle to φ

x actualizes its principle to φ

Unlike modal modality, which contrasts non-actual beings with actual beings, ascriptions of principiative modality always refer to some feature that a being possesses.

As noted in §3 above, a principiative potency is rather like the possession of an ability or a capacity. This analogy is fruitful, and it will help to bear it in mind in what follows. The most important feature of principiative potencies is that they are divided into *active* and *passive*—roughly equivalent to the distinction between abilities and capacities: they are real constituents of things, by means of which their possessors can perform or undergo some activity. Since potency is ordered to act, it might be thought that the distinction between active principiative potency and passive principiative potency was all that need be said: once we distinguish between an ability or capacity and the result of its exercise—between the principle, its principiating, and the principiatum—there is no more work to be done; principiative potencies, like any ability or capacity, are clearly related to and defined by the results of their corresponding exercise.

However, Scotus thinks that there is a fundamental distinction to be drawn at this point. For principles are not only related to their principiate as their actualizations, but they may also be related to other principles as their actualizations—roughly, that active principles and passive principles

are made for each other. Scotus presents this distinction in *QSM* 9 qq. 3–4 n. 5 (*WV* 7 546a):

It should be known that a principle does not have only a relation to its principiatum, and *such* a principle to *such* a principiatum (*e.g.* the efficient [cause] to its effect [and] the matter to the materiate), but also one principle has a respect to another principle, since, whether the [principles] be extrinsic or intrinsic, the one and the other never mutually cause [anything] unless they be united and concur among themselves in some way, for no one [cause] is sufficient to cause that which essentially depends on many causes. (How the four causes concur in causing the same [thing], and how they are essentially ordered in causing, is clear from the Ninth Thesis of [my] *Tractatus de primo principio* c. 2.) Those two relations are of completely different *rationes*, and both can be founded in the same absolute [subject]—rather, they are necessarily founded [in the same absolute subject].

Scotus explicitly refers to this presentation of the distinction in discussing self-change, so it is important to be clear about what the distinction amounts to.⁴⁴ In *Met.* 5.15, Aristotle offers two examples of active potencies that illustrate Scotus's distinction. The first example is the relation between “what is able to heat” and “what becomes hot” (1021^a16–17); the second example is the relation between the craftsman and what he produces, or the relation between the father and the son (1021^a22–24). These examples are very different from each other, as Scotus remarks in *QSM* 9 qq. 3–4 n. 5 (*WV* 7 546a-b):

[As for Aristotle's first example]: It is plain that “what is able to produce heat” is not said with reference to what becomes hot in the way in which a principle [is said] with reference to its principiatum, but rather as, for example, an active principle with reference to a passive [principle], from which there follows one principiatum, with reference to which both [principles] are said.

[As for Aristotle's second example]: But “father” is not said with reference to his son in this way; neither is what is going to make

⁴⁴ When Scotus turns to the interpretation of the Modal Argument as involving principiative modalities, in *QSM* 9 q. 14 n. 18 (*WV* 7 596b), he begins by drawing this distinction: “However, if “potency” be taken so that it expresses a relation to a principle (in the way in which [the topic] has been discussed in *QSM* 9 qq. 3–4), [then] it expresses either a relation of the principle (*a*) to the principiatum, or (*b*) to another principle, as was initially distinguished in *QSM* 9 qq. 3–4.” This immediately follows Scotus's discussion of modal modalities, cited above.

[said] with reference to what is to be made as with reference to a principle, but rather as with reference to its principiatum. . .

In this [discussion], too, there is a clear example of how Aristotle says that (a) a passive principle has a passive potency in respect of another principle, not in respect of the principiatum, but (b) [the passive principle] has potency in respect of the principiatum as well, insofar as the principiatum can come to be from it.

The craftsman is *immediately* related to his product, as is the father to his son. But what is able to heat is at best *mediately* related to something hot; the active potency to heat something is, strictly speaking, directed at its object's passive potency to be heated, and it is only their joint action that produces the result—the hot object—as their mutual principiatum. Hence the actualization of a principle may be directed toward another principle, and both principles together produce the principiatum. Active and passive principles are, literally, made for one another.

There is a special case to add to these two ways in which principles are related to their actualizations, namely the relation between a passive principle (matter) and a form, which together make up a composite substance. Now the substantial form of a composite substance is not any sort of potency, but instead is an act, and thereby an intrinsic principle of the composite. Hence the form is not a principiative potency (since it is not a potency at all), yet it does combine with a passive principiative potency, namely matter, to produce a genuine unity. Scotus mentions this case in passing in *QSM* 9 qq. 3–4 n. 6 (*WV* 7 546b):

A passive principle also has a respect to a form, along with which (as along with an intrinsic principle) it principiates the principiatum.

And [Aristotle] says of this that [something] that is one [results] from matter and form because the latter is act and the former potency (*Met.* 8.6 [1045^a22–23]).

A substantial form, as an active principle, need not have an intrinsic relation to matter; there are immaterial forms, forms that do not require matter for their existence. Hence the analyses of passive potency and active potency are not symmetric.

Scotus concludes that ascriptions of principiative potency are distinguished first into active and passive principiative potencies, and then into the various ways each can be actualized. He presents the “physical” definitions of each in *QSM* 9 qq. 3–4 n. 7 (*WV* 7 547b):⁴⁵

⁴⁵ In *QSM* 9 qq. 3–4 n. 8 (*WV* 7 548a-b) Scotus says that abstract ‘metaphysical’ definitions can be obtained from the ‘physical’ definitions in the following manner:

Understand that “passive [pricipiative potency]” is triply equivocal, namely as it expresses a relation: [PP1] to the principiatum passively; [PP2] to an active principle—not insofar as it is the active [principle] of an act, but insofar as it is the actual active [principle] of the actuable (since an active principle is referred [to]⁴⁶ a passive [principle] in the converse way); [PP3] to an actual principle that along with itself constitutes the composite by producing along with [the passive principle] something that is one. Likewise, understand that “active [pricipiative potency]” is doubly equivocal, namely [as it expresses a relation]: [AP1] to an actual principiatum; [AP2] to another actuable principle. It is perhaps not necessary to postulate a third [relation], namely [a relation] to the form.⁴⁷

Passive principiative potency may be related to its principiatum in the way in which the capacity for undergoing something is related to that which it undergoes ([PP1]); it may be related to an active principle that actualizes it—not as the active principle is related to its principiatum, as in [AP1], but rather as the active principle is a real principle whose actualization is to actuate a passive principle (“the actuable”), as in [AP2]—in the way in which the capacity to be heated is linked with the ability to heat something ([PP2]); it may be related to a form, as matter and form together produce the composite as a unity ([PP3]). Active principiative potency may be related to the principiatum it actually produces, as the father to his son ([AP1]); it may be related to a passive (“actuable”) principle, the converse of [PP2], as the ability to heat something is related to the capacity to be heated ([AP2]). Thus [AP1] and [PP1] are each ways in which a principiative potency is immediately related to a principiatum, whereas [AP2] and [PP2] are correlatives, each mediately related through the other to their mutual

“[Namely] by leaving out what restricts [the definition] to naturalness and by putting in more generally what is pertinent for the metaphysician. Active potency is: [AP1*] the principle of doing what can be done; [AP2*] [the principle] of actuating an actuable [principle]. Passive potency is: [PP1*] the principle in virtue of which something can be changed; [PP2*] the principle of being passively actuated by an active act; [PP3*] the principle that is actuable either as able to be informed by an act, or by an actual principle.” Note that these ‘metaphysical’ definitions omit any reference to the characteristics of their subjects, unlike the ‘physical’ definitions.

⁴⁶ Reading *ad for et*.

⁴⁷ Matter, as a passive principiative potency, has a special relation to substantial form: it is organized into something per se one by it. However, there is no active principiative potency that stands in a similar “special” relation to substantial form. Substantial forms need not be potential before being actual. The substantial form is itself an actuality, and although it may be the actuality of the matter, it need not be.

principiatum.

To return to the case of self-change: [A5], the application of the Law of Non-Contradiction to potency and act, has to be carefully distinguished according to the several kinds of potency and act that can obtain. We have seen on p.26 above that [A5*], construing the modalities as modal modalities, is true but irrelevant to the case of self-change. What about the following interpretation of [A5]:

[A5**] Nothing has both a principiative potency and a principiative act that are related to the same object

where the modalities are construed as principiative modalities?

There is not a simple answer, because principiative modalities are far more complex than modal modalities: [A5**] is sometimes valid, sometimes not. Scotus considers five cases. First, if [AP1] is combined with the claim that the principiatum is the “act” of the active principiative potency, then [A5**] will be interpreted as follows:

(a) Nothing both (i) has an active principiative potency that is related to its actual principiatum, and (ii) is that very principiatum.

It should be clear that (a) holds necessarily, because it describes a situation in which one and the same thing actively principiates itself—which is ruled out by the general principle that nothing can be its own cause. Furthermore, if [PP1] is substituted for [AP1] in this schema, [A5**] will be interpreted as follows:

(b) Nothing both (i) has a passive principiative potency that is related to its actual principiatum, and (ii) is that principiatum.

It should also be clear that (b) holds necessarily, because it describes a situation in which one and the same thing passively principiates itself, *i. e.* is defined solely by its capacity to receive itself as an act, which is impossible. Therefore, it is impossible for one and the same thing to be both the (active or passive) subject and the recipient of the principiatum. This is in fact what Scotus says in *QSM* 9 q.14 n.18 (*WV* 7 596b):

If [“potency” expresses a relation] to its principiatum, [then], if the [principiatum] were called an “act,” I grant that nothing essentially the same is potency and act, since no essence that is one properly principiates itself effectively (*nulla una essentia seipsam principiat proprie effective*), nor [does it do so] in the case of any kind of principle whatsoever.

It remains to be seen whether the impossibility of self-causation rules out self-change—whether there is some interpretation of [A5**] that does not hold.

Scotus immediately offers such an interpretation, though a bit strained.

Assume that a concrete thing (*suppositum*) can have within itself two distinct natures.⁴⁸ If [AP1] is combined with the claim that the production of its principiatum, although received by the other nature of the *suppositum*, allows us to call the active principiative potency itself an “act,” then [A5**] will be interpreted as follows:

- (c) Nothing is composed out of two natures such that both (i) one nature has an active principiative potency that actually principiates a principiatum, so that the active principiative potency is itself an act, and (ii) the other nature is receptive of that very principiatum.

Scotus denies that (c) holds in *QSM* 9 q. 14 nn. 18–19 (*WV* 7 596b–597a):

Nevertheless, the same *suppositum* can have two natures in itself, of which the one [nature] is the active principle and the other [nature] the principiatum, and so it is in potency—*i. e.* it is potent by means of the active principle—and [the active principle] is in act (or it is an “act”) due to its principiatum. But in this way, “act” has not typically been taken generally for what has acted.

However, (c) is not relevant to self-change, because it is improper to use “act” to refer to the actualization of the active principiative potency itself. Strictly speaking, the active principiative potency is such that its actualization is the act that is received in another nature; the active potency is “what has acted,” not an “act” itself.

Scotus then turns to another case in which [A5**] fails to hold. If [PP3] is combined with the claim that the form of something, which is an actual principle of the composite, is an “act,” then [A5**] will be interpreted as follows:

- (d) Nothing has both (i) a passive principiative potency (such as matter) that, along with an actual principle (namely the form), produces along with it something that is one; (ii) an actual principle, namely a form, which is the act of the passive principiative potency (namely matter).

It is clear that (d) does not hold, since the combination of matter and form do produce a unity, and indeed one that makes their concrete combination fall under a category. And this is exactly what Scotus says in *QSM* 9 q. 14 n. 19 (*WV* 7 597a):

If, however, “potency” expresses the relation of a principle to act as to another intrinsic principle, then to accept that both are not in any one *suppositum* is to accept that no *suppositum* is in this way

⁴⁸ The term “*suppositum*” is a technical theological term used to describe the concrete object that was Christ, which possessed both a human nature and a divine nature.

categorial, and thus [to accept] that no *suppositum* will be composed out of a potential principle and a principle that is called an act—which is false.

Yet (*d*) is irrelevant to self-change, whether it holds or does not hold, since it describes the fundamental composition of matter and form, which does not involve any change at all.

The final case Scotus takes up secures the possibility of self-change. Consider what happens if [PP2] is combined with [AP2]—a case in which active and passive principles are conjoined mutually to principiate their joint principiatum. In this case, [A5**] will be interpreted as follows:

(*e*) Nothing has both (*i*) an active principiative potency related to a passive principiative potency it actualizes, resulting in a joint principiatum, and (*ii*) an act with respect to the principiatum.

Yet (*e*) simply begs the question. Consider how Scotus describes the case in *QSM* 9 q. 14 n. 19 (*WV* 7 597a):

Yet if in the end “potency” expresses the relation of a passive principle to an active principle that is said to be in act (*i. e.* active) but is *not* called an “act,” then to accept that nothing that is the same is both in potency and in act is only to express in different words the fact that nothing that is the same is both active and passive—and this is not an *a priori* proof, but rather begs the question by taking the same point in different words [in order to]⁴⁹ prove itself.

We can recast Scotus’s charge that (*e*) begs the question in the form of an argument, one that turns on the nature of equivocal causality and principiative modality:

- [EC1] Suppose that *x* has an active principiative potency in virtue of being informed by some form φ . (Hypothesis)
- [EC2] Then we can say that *x* is active with respect to φ , since *x* is informed by φ . (by [EC1])
- [EC3] Suppose also that *x* has a passive principiative potency for some form ψ . (Hypothesis)
- [EC4] Then we can say that *x* is in potency to ψ by means of its passive principiative potency. (by [EC3])
- [EC5] Hence *x* is passive with respect to ψ . (by [EC4])
- [EC6] Suppose that the actualization of *x*’s active principiative potency is to actualize *x*’s passive principiative potency, so as jointly to produce a form ψ that informs *x*. (Hypothesis)
- [EC7] Then *x* is active with respect to ψ by means of its active princip-

⁴⁹ Reading *ad* for *ab*.

iative potency.⁵⁰ (by [EC6])

[EC8] The active principiative potency is not an “act” of ψ . (by [EC6])

Therefore: x is active and passive with regard to ψ . (by [EC5] and [EC7])

An example will clarify the argument. A brick is informed by the form heaviness ([EC1]). Hence it is active with respect to *heaviness*, or, in plain English, the brick is actually heavy ([EC2]). Now it is a fact that a brick has the passive principiative potency *being moved downward* ([EC3]): bricks can be moved downward, after all. Hence the brick is in potency to downward motion ([EC4]), and it is passive as regards downward motion ([EC5]). Now suppose that the form *heaviness* produces an active principiative potency in the brick ([EC1]). What might this active principiative potency be for? It seems clear that the heaviness of a body is closely linked to its moving downward. In keeping with [EC6], then, suppose that the active principiative potency engendered in the brick by *heaviness* serves to actualize the brick's passive principiative potency *being moved downward* so that the pair of principiative potencies jointly produce the principiated form *moving downward* in the brick. Hence the brick is active with respect to moving downward in virtue of its active principiative potency ([EC7]), even if it is not *actually* moving downward ([EC8]). Therefore, the brick is passively able to be moved downward, and is active with respect to moving downward—it is a self-mover. No wonder Scotus finds the insistence on (e) question-begging: [EC1]–[EC8] describe a consistent case, given the assumption of equivocal causality and the interpretation of the modalities as principiative.⁵¹

Scotus often summarizes his conclusion by saying that formal potency and virtual act are compatible as regards the same form, but this summary, too often mistaken for an explanation, does not reveal the subtle analysis

⁵⁰ Scotus is ambiguous on the ‘by means of’ clause in [EC7]: is x active with respect to ψ solely in virtue of the equivocal causality of its active principiative potency, or is x active with respect to ψ in virtue of the interdefined active and passive principiative potencies that jointly principiate ψ ? I am inclined to the latter interpretation, but his argument holds no matter which interpretation is adopted. Note that [EC7] is the correct interpretation of [A3] regarding principiative modalities.

⁵¹ The conclusion drawn here is stronger than Scotus's statement of it, namely that “nothing that is the same is both active and passive.” Yet this statement only has force if it is interpreted as “active and passive in the same respect,” which is how I have formulated his conclusion. Note that the case of downward motion will be examined, with a good deal more precision, in connection with the Primacy Argument; here it serves merely as a convenient example.

of modality and causality at work behind the scenes.

In the critical case, then, the Modal Argument fails: [A3] and [A5] fail to hold. Hence the common position against self-change is deprived of its central argument, and Scotus can maintain the conclusion of his General Argument that self-motion is at least possible, having now given a complete description in [EC1]–[EC7] of the conditions that must be met for a genuine case of self-change to occur.

Denomination

Scotus’s account of the modality of self-change allows one and the same thing to become ψ only in virtue of that thing possessing two distinct principles, one of which acts on the other, that jointly produce ψ . Since these principles are real features of a single thing, Scotus’s claim that there is literally one and the same *thing* involved in a case of self-change has some force. Yet a defender of the common position might well maintain that, strictly speaking, the agent and the patient are distinct: what primarily becomes ψ is the passive principiative potency, not the whole subject, although the whole subject is ψ in virtue of the actualization of its passive principiative potency.

Scotus’s response to this objection is to be found in his account of denomination—how terms derived from abstract relations, such as “cause” and “principle,” are correctly applied to things.⁵² In *QSM* 9 qq. 3–4 n. 3 (*WV* 7 544a-b), Scotus writes:

It should be known that sometimes several denominative [terms] are said on the basis of the same abstract [term]—namely denominative [terms] that are naturally apt to denominate diverse [things]—and what is designated by the abstract [term] has a relationship (*habitudinis*) to these diverse [things]. (One could multiply examples [of this], if prolixity were not to prevent it!) Thus on the basis of the relation called “principiation,” designated in the abstract, one denominates in diverse ways (1) what principiates, and (2) that by which it principiates, because that by which [something principiates] is immediate, and what [principiates] is mediate. In accordance with this, two denominative [terms] can be made appropriate to them, namely so that:⁵³ (1*) what [principiates] is called the “principiator,” and (2*) that by which [it principiates] is called the

⁵² The discussion that follows amplifies and corrects the terminology introduced in §1 above.

⁵³ I have reversed the order of Scotus’s sentence here so as to conform to (1) and (2) above.

“principle.” Thus it is clear that “principle” essentially brings in the relation of principiation, and it does this in the concrete—namely, as it is naturally apt to concern its immediate foundation, which is *that by which*, but not its remote [foundation] or subject (which is not *that by which*).⁵⁴

Similar distinctions could be drawn for causation: what causes is called the “causer,” and that by which it causes is, strictly speaking, the “cause.” The common use of “cause” for both of these is inaccurate. But it is precisely this inaccuracy that gives the objection stated above its force. What brings about the change is not the principle, though it is often harmless to speak loosely in this way, but rather the principiator. The principle is that by means of which a principiator principiates the principiatum. Likewise, that which causes is the causer, not the cause, which is that by which a causer causes the effect. Therefore, strictly speaking, the agent and the patient in a case of self-change are not distinct: the principiator (or causer) is one and the same thing as the principiatum (or effect).

Scotus's solution is more than a verbal trick. It rejects the objection as ill-formed and based on a confusion between two levels: the level of primary substances, in all the richness of their properties and principles, and the level of principles themselves. But principiation and causation only occur at the former level, not at the latter. To be sure, primary substances exercise their principiative and causal powers *by means of* their principles and causes, but the principles and causes themselves are only means, not agents.

The objection, though ill-formed, appears to make sense because it is easily confused with a second question: whether the principles or causes involved in a case of self-change are really distinct, *i. e.* whether it is possible for something to have some but not all of the principiative modalities requisite for a case of self-change.

Scotus grants that principiative modalities are real features of things, distinct by their *rationes*, but beyond that he has little to say.⁵⁵ The reason

⁵⁴ When Scotus writes “its immediate foundation” or “remote [foundation] or subject” he is referring to the immediate or remote foundation of the relation *principiation*.

⁵⁵ It is important, however, that the principiative modalities be *real* features of things that are distinct by their *rationes*. For self-change, such principles are clearly distinct as active and as passive. Scotus further insists that this is not merely a distinction of reason when he discusses Henry of Ghent's ‘intentional distinction’ between the agent and the patient, mentioned in note 1, in *QSM* 9 q. 14 n. 17 (*WV* 7 595b): “According to those [philosophers who accept Henry of Ghent's reply], there is no intentional difference in the thing, except in potency. Now [an intentional difference] is complete and in act only by means of the intellect. However, if some difference is required in something for moving itself, since [moving itself] is a real effect, that difference must

for his reticence is simple. If x has an active principiative potency to induce ψ in a recipient subject, a power rooted in a form φ , then it is clear that if x lacks the corresponding passive principiative potency for ψ it cannot change itself. There is no general answer, I take it, to the second question; it depends on the nature of the subject in question. For example, Scotus claims that the active and passive principiative potencies required for the self-actualization of the will cannot be lacking to the will, since these potencies constitute the very foundation of the will's nature as a self-determining faculty of choice.⁵⁶ On the other hand, an animal's power of locomotion is due to the relevant potencies being "localized" in distinct constituent parts of the animal: the soul has the active principiative potency to move the body, and the body has the passive principiative potency to be moved, the combination of which results in locomotion. Insofar as souls can be separated from bodies, so can the relevant principles. Therefore, the answer to this second question will depend on the way in which the principiative modalities are realized in their subject, and this has nothing to do with their capacity to bring about self-change when they are jointly present.

5. Scotus's Response to the Primacy Argument

In his discussion of the Primacy Argument, Scotus makes extensive use of three distinctions, addressing the Primacy Argument at a higher level of generality than that at which Aristotle presents it. The first distinction is between a *homogeneous whole* and a *heterogeneous whole*. A whole is homogeneous when the same *ratio* applies to the whole and to each of the things that fall under it, namely its parts (in an extended sense).⁵⁷ For

be real [and not merely intentional], because a real effect does not depend upon an act of reason." Scotus discusses Henry's position at length, but this argument is enough to show that there is not merely a distinction of reason between the agent and patient in a case of self-change. Rather, there is a distinction of principles as real features of things.

⁵⁶ Scotus makes this assertion in *Op. Ox.* 2 d. 25 q. unica n. 13 (WV 13 208b), speaking of the will: "It is absurd that the most noble form, of which sort is the intellectual soul, not have active potencies for its own accidental perfection and receptive [potencies] for the same. And since active and passive potencies cannot be granted in such forms, which are not distinct in subject since they are not organic potencies, then they are not distinguished in subject, and so they will be there unitively, without a distinction by reason of [their] subject, yet not without a formal distinction." This is the only passage I am acquainted with in which Scotus asserts a formal distinction (see note 78 below) among the principles involved. He seems not to be interested in the question.

⁵⁷ Scotus does not restrict himself to the consideration of quantitative wholes, which strictly are the only wholes to have parts, but includes any relation of greater and lesser

example, each part of fire is itself fire. Wholes that fail to be homogeneous are heterogeneous.

The second distinction is between a *homogeneous attribute* and a *heterogeneous attribute*. An attribute is homogeneous if it is “of the same *ratio* for the whole amount and for a partial amount” of its subject, as Scotus says in *Ord.* 2 d. 2 p. 2 q. 6 n. 485 (*Vat.* 7 374).⁵⁸ Any part of something yellow is itself yellow, in the same way and to the same extent that the whole is yellow. On the other hand, an attribute is heterogeneous if it is not homogeneous, such that it applies to its subject in virtue of one part of its ratio applying to one part of the subject, another to another, and so on (*e.g.* the attribute “left-handed bald man”).

The third distinction is between two kinds of primacy. Scotus takes Aristotle to define one kind of primacy in *An. post.* 1.4 73^b32–74^a3 (call this “primarily₁”), and another kind of primacy in *Phys.* 5.1 224^a21–30 (call this “primarily₂”), each described below.⁵⁹ Scotus holds that Aristotle’s argument, strictly speaking, only shows that there is a contradiction if a homogeneous attribute φ , such as *locally moving*, is predicable of a whole x with *both* kinds of primacy.⁶⁰ In order to see why this should be so, and

generality as a whole-part relation. Hence class-inclusion qualifies as such a relation, as does the relationship of superordination/subordination that characterizes genus and species—the paradigmatic case of a universal whole-part relation in contradistinction to a quantitative whole-part relation. In Scotus’s extended usage, whatever is less general counts as a “part” of what is more general. The isosceles triangle is a part of the triangle in this sense, and likewise the hand of Socrates is a part of Socrates; a species is a part of its genus, and a subclass of its class. Aristotle’s move in [B2] from divisibility to quantitative wholes was too swift, in Scotus’s eyes: all that Aristotle is entitled to conclude is that in cases of putative self-motion some distinction between parts and wholes is appropriate, not that the wholes must be quantitative.

⁵⁸ Repunctuating the text of the Vatican Edition to read *inquantum illa passio accipitur ut homogenea (hoc est eiusdem rationis toti quanto et parti quanti)—quia...* according to the sense of the passage.

⁵⁹ Scotus describes both kinds of primacy in *QSM* 9 q. 14 n. 16 (*WV* 7 594b); he also describes them in *Ord.* 2 d. 2 p. 2 q. 6 nn. 475–476 (*Vat.* 7 369–370), where “primarily₁” is called “the primacy of precise causality” and “primarily₂” is called “the primacy according to the whole.” See note 27 above for *An. post.* 1.4 73^b32–74^a3, and note 69 below for Scotus’s description of Aristotle’s distinction in *Phys.* 5.1 224^a21–30.

⁶⁰ In *QSM* 9 q. 14 n. 16 (*WV* 7 594b), Scotus asserts that Aristotle is investigating whether a homogeneous attribute can be present in a whole primarily₁ and, “along with this,” that it be present primarily₂ as well. He gives the same analysis of the Primacy Argument in *Ord.* 2 d. 2 p. 2 q. 6 n. 477 (*Vat.* 7 370): “Hence I say, then, that Aristotle’s argument in *Phys.* 7.1 [241^b34–242^a16] correctly proves that no body is moved by itself primarily with this double primacy at once.” Scotus’s revision of the Primacy Argument will show that a stronger conclusion is available, namely that

to follow Scotus's revision of the Primacy Argument at the higher level of generality at which he formulates it, let us consider each kind of primacy in some detail.

The First Kind of Primacy

Now "primarily" is an adverbial modifier that characterizes the way a predicate is said of a subject, or, in the material mode, the way some attribute is present in a subject. With regard to the first kind of primacy, the proposition:

x is φ primarily₁

is true when x is the "commensurate subject" of φ : the most general subject such that any given case is characterized by φ . Aristotle's example of an attribute that is present in its subject primarily₁ is the attribute "internal angles equal to 180°" applied to the subject "triangle." This attribute does not characterize all plane figures, or even all rectilinear plane figures, though it does characterize some of them (*viz.* the triangles). Furthermore, whereas this attribute does apply to any given isosceles triangle, there is a more general subject to which it applies, namely the triangle. Hence the elimination-rule for primarily₁:

(E1) Anything that is φ primarily₁ is φ

holds by definition. Thus anything that is locally moved primarily₁ is thereby locally moved, for instance. Now given that x is φ primarily₁, it is possible for a part y of x —that is, something less general than x —to be φ as well. What is impossible is for y to be φ primarily₁: the isosceles triangle has internal angles equal to 180°, but it cannot have internal angles equal to 180° primarily₁. Therefore, the proper reformulation of [B1] (p. 8 above) at a higher level of abstraction is:⁶¹

[B1*] Anything that is φ primarily₁ is φ even if another thing is not φ .

What makes a thing "another" is that the initial subject is not predicated of it. Yet this last condition does not obtain in the case of homogeneous wholes, since a homogeneous whole (the "initial subject" of an attribute) is predicable of its part. Every part of water is water. By definition, the homogeneous whole and its part have the same *ratio*, and so a part of a homogeneous whole is not "another thing" aside from the whole. Hence the

no homogeneous attribute is present in a heterogeneous whole primarily₁.

⁶¹ The replacement of [B1] by [B1*] is the intent of Scotus's first remark after distinguishing the two kinds of primacy. As he says in *QSM* 9 q. 14 n. 16 (*WV* 7 594b): "Such a predicate is never removed from that in which it is present primarily for the reason that its opposite is present in something that does not receive the predication of that initial subject." Where 'such a predicate' refers to a predicate picking out a homogeneous attribute.

claims about wholes and parts in [B4] and [B5] have to be restated more accurately as follows:⁶²

[B4*] Heterogeneous wholes are not predicable of their parts.

[B5*] A part of a heterogeneous whole differs from that whole.

Since [B4*] and [B5*] only apply to heterogeneous wholes, a reformulation of [B2], the supposition that everything capable of motion must be a whole, is available along the same lines:

[B2*] Assume that φ is predicable of something that is a heterogeneous whole.

Thus Aristotle's Primacy Argument, as well as Scotus's Revised Primacy Argument, is addressed to heterogeneous wholes rather than homogeneous wholes. This logical shortcoming leaves open the possibility that homogeneous wholes may be self-changers, a possibility the Primacy Argument (in none of its versions) has nothing to say about. Scotus will exploit this shortcoming in due course, as we shall see.

The Primacy Argument stands in need of clarification even when restricted to heterogeneous wholes. In order to combine [B1*] with [B5*], we have to take into account the character of the attribute with respect to heterogeneous wholes and their parts. Now in order for an attribute to belong to a heterogeneous whole primarily₁, the attribute must be homogeneous, according to the following argument.⁶³ If a whole is φ primarily₁, then an attribute φ does not belong to it in virtue of any less general feature that

⁶² The revisions [B4*] and [B5*] seem to be what Scotus has in mind as he continues in *QSM* 9 q. 14 n. 16 (*WV* 7 594b): "But a quantitative part does not [in general] receive the predication of a quantitative whole, although the same whole is predicated as a universal of each [part] in the case of homogeneous [wholes]." Only homogeneous wholes are truly predicable of their parts.

⁶³ The argument that follows is based on Scotus's remarks in *Ord.* 2 d. 2 p. 2 q. 6 n. 478 (*Vat.* 7 370–371): "If a whole is moved by itself primarily [*i. e.* primarily₁], then this predicate "being moved" is not removed from the [whole] for the reason that it is removed from something that is not it, nor is it dissociated from the [whole] for the reason that it is removed from something that is something belonging to it. . . Therefore, *being moved* is not removed from a whole to which it is present "primarily" by means of this primacy [*i. e.* primarily₁], even if it be removed from a part of [the whole] (and the part is not the [whole] itself). Hence if the whole is moved 'primarily' by this primacy [*i. e.* primarily₁], it does not rest at the rest of a part." Scotus is careful to say that *being moved* is predicable of its subject primarily₁ even if 'it'—the predicate *being moved*—is denied of a part. For a homogeneous attribute φ , the fact that a heterogeneous whole is φ primarily₁ entails that no part of the heterogeneous whole is φ , as the argument in the text shows. This is not to be confused with the claim that no part of the heterogeneous whole is φ primarily₁, which is true by definition but does not advance his argument.

it possesses, by the definition of “primarily₁.” Belonging to a subject only in virtue of strictly belonging to a part of the subject *is* a “less general” feature of a whole, provided that the part is not the same as its whole—*i. e.* that the whole is heterogeneous. (The part is not less general than the whole, but belonging to the whole only in virtue of a part is less general than belonging to the whole in virtue of the whole.) What about the attribute? If the attribute is also heterogeneous, it could apply to part of a heterogeneous whole in one way and to the entire heterogeneous whole in another way. Yet since the part differs from its heterogeneous whole, the attribute cannot apply to merely a part—a less general feature – and still be predicable of the heterogeneous whole primarily₁. Hence the attribute cannot be heterogeneous, and so must be homogeneous. Therefore, the homogeneous attribute φ cannot apply to any part of a heterogeneous whole that is φ primarily₁. This argument permits [B7] to be reformulated as follows:⁶⁴

[B7*] Any part of a heterogeneous whole that is φ primarily₁ is not φ , for any homogeneous attribute φ .

Thus heterogeneous wholes that are the commensurate subjects of a given homogeneous attribute cannot have parts that the attribute characterizes.

For example, it seems as though an animal’s body is the commensurate subject of the homogeneous attribute *being overweight*. (Flowers are not overweight; neither are mountains or molehills.) Furthermore, an animal’s body is a heterogeneous whole that may include arms, legs, tail, stomach, chest, and so on. The homogeneous attribute *being overweight* does not apply to any single part of an animal’s body, though: we do not say that someone has an overweight arm or an overweight finger; *being overweight* is a feature that characterizes the whole that is the animal’s body, and nothing

⁶⁴ Scotus himself proceeds to derive [B7*] from [B1*], [B2*], and [B5*], for the particular case of the homogeneous attribute *locally moved*, in his next remark in *QSM* 9 q. 14 n. 16 (WV 7 594b): “Therefore, a [heterogeneous] whole that is moved primarily, taking “primarily” in the [first] way, does not rest at the rest of a part—*i. e.* [the whole] does not lack what is predicated as inhering primarily because a part, which is not that whole, does lack [what is predicated as inhering primarily].” The use of [B2*] in the derivation is implicit, to guarantee that the subject discussed in [B1*] and [B2*] can be characterized by a homogeneous attribute. Note that from [B7*] the result follows a fortiori that such a heterogeneous whole is unaffected by the fact that a part fails to possess the homogeneous attribute in question—it being impossible for any part to do so, by [B7*]—and hence we can offer the following as the correct reformulation of [B6]: [B6*] Any heterogeneous whole that is φ primarily₁ is φ even if a part of it is not φ , for any homogeneous attribute φ . However, [B6*] plays no logical role in Scotus’s Revised Primacy Argument, its work being done by the stronger claim [B7*].

more general (such as inanimate bodies). Scotus's point is that the relations illustrated in this example obtain in virtue of the formal characteristics of the whole, the attribute, and the whole's possession of the attribute. If they are respectively heterogeneous, homogeneous, and primarily₁, then the attribute will never characterize any proper part of the whole.

The preceding remarks all depend on taking the sense of "primarily" in [B1] as primarily₁. There is an alternative to this interpretation: Scotus admits another kind of primacy, to which we now turn.

The Second Kind of Primacy

When Scotus introduces the second kind of primacy in *QSM* 9 q. 14 n. 16 (*WV* 7 594b), he deliberately *contrasts* it with the case in which φ is predicated of S only in virtue of applying to a proper (integral) part of S , *e. g.* when Socrates is said to be healthy because the part of him that was diseased is now recovered.⁶⁵ To put the point suggestively, we may say that the proposition:

S is φ primarily₂

holds only when φ applies to S as a whole. Hence the elimination-rule for primarily₂:

(E2) Anything that is φ primarily₂ is φ

holds by definition, *e. g.* anything that is locally moved primarily₂ is thereby locally moved. Now if some part of a whole that is φ primarily₂ were itself not φ , the homogeneous attribute φ would apply to the whole only in virtue of the *remainder* of the whole being φ .⁶⁶ But the remainder of a whole is itself a proper part of the whole, and hence the attribute φ would apply

⁶⁵ Scotus also describes "primarily₂" in *Ord.* 2 d. 2 p. 2 q. 6 n. 475 (*Vat.* 7 369–370), called there the 'primacy according to the whole': "In one way, ['primarily'] is taken] insofar as it expresses the same thing as what is "according to the whole," and it is opposed to what is "according to the part." Aristotle takes ['primarily'] in this way in *Phys.* 5.1 [224^a21–29], where he distinguishes that something is moved according to an accident or according to a whole, and something according to a part. Aristotle also takes 'being moved primarily' in this way in *Phys.* 6.6 [236^b19–23], where he says that 'whatever is moved at some time, primarily, is moved at any [part] of that time.' (He frequently [takes 'primarily'] elsewhere [as well].)" The main contrast, for our purposes, is between an attribute that applies to a subject merely in virtue of a part, and applying in virtue of the whole.

⁶⁶ The assumption that the attribute is homogeneous rules out the possibility of heterogeneous "emergent" properties that are only applicable at the level of the whole. If health were a heterogeneous property, such as the proper balance of all the parts of an animal's body taken together, then any part would by definition fail to be healthy but the animal would nevertheless be healthy as a whole—the animal would be healthy primarily₂ despite the fact that no part of it is healthy (strictly speaking).

to the whole only in virtue of applying to some proper part of it. By the definition of *primarily*₂, then, the whole is not φ *primarily*₂, which contradicts the initial assumption that the whole is φ *primarily*₂. Hence if some part of a whole is not φ , the whole is not φ *primarily*₂.⁶⁷

The conclusion drawn at the end of the preceding paragraph specifies a logical condition that any whole must satisfy for a homogeneous attribute. In particular, it does not assert the existence of a causal connection: the part's not being φ is not the *cause* of the whole's not being φ *primarily*₂, but rather is a *sufficient condition* for the whole's not being φ *primarily*₂. The condition of the part is not an efficient, material, formal, or final cause of the condition of the whole. Causal connections are not to be assimilated to logical conditions. Scotus argues that once this further distinction is drawn, there is only one possible way to read [B1] and [B3], as he says in *QSM* 9 q. 14 n. 16 (*WV* 7 594b–595a):

But every whole *does* rest [at the rest of another], because it is divisible—and so (a) “another” [in the phrase “at the rest of another”] is taken in Aristotle for that which does *not* receive the predication of the motion primarily, [namely the part], and (b) the “at” [in the phrase] is held consecutively, not causally. Now if the phrase were formulated by means of an absolute [grammatical construction]:⁶⁸ “that part being at rest”—it should [still] be analyzed by “if” and not by “because,” for although [B1] would be true with “because,” nevertheless [B3] is false [with “because”].

The phrase “at the rest of another” occurs in [B1]. The grammatical reformulation of [B1] Scotus mentions here, so as to have a distributed middle term to connect [B1] and [B3], should be interpreted consecutively rather

⁶⁷ Scotus offers a version of this argument in *Ord.* 2 d. 2 p. 2 q. 6 n. 477 (*Vat.* 7 370), under the further assumption that the whole is homogeneous: “For if [a body] were moved by itself primarily, *i. e.* according to itself as a whole, then the motion would be in any given part of it. The consequence holds by the fact that that which is a whole, insofar as it is moving, is homogeneous, and *being moved* is a homogeneous attribute. Now a homogeneous attribute is not present in a whole ‘primarily’ with the primacy [‘according to the whole’] unless it is present in any given part of [the whole]. Therefore, it follows that if a whole is moved ‘primarily’ in this way, that if a part is at rest, the whole is at rest.” According to the argument given in the text, the requirement that the whole be homogeneous can be dispensed with; Scotus only mentions it here since he is concerned with the particular case of the local motion of a homogeneous body. All that he needs in order to establish the “consequence” to which he refers is that the attribute be homogeneous.

⁶⁸ Literally: “but if the claim were formulated by means of an ablative absolute.” I have given the corresponding nominative absolute (the only absolute construction English possesses).

than causally: whereas [B1] may hold consecutively or causally, [B3] does not hold when taken causally, as noted above. By implication, then, a consecutive reading should preserve the truth of [B1] and [B3], so as to produce a valid argument.⁶⁹ Hence the correct reformulation of [B3] is:

[B3*] If any part of a whole is not φ , then that whole is not φ primarily₂, for any homogeneous attribute φ .

Substitution on [B3*] readily yields another premiss for the Revised Primacy Argument:

[B10] If any part of a whole that is φ primarily₁ is not φ , then that whole is not φ primarily₂, for any homogeneous attribute φ .

where [B10] illustrates a link between the two kinds of primacy.

The Connection Theorem

There is another, more fundamental, link between the two kinds of primacy. According to (E1), anything that is φ primarily₁ is φ . If φ is a homogeneous attribute, then, as in the argument for [B7*], it cannot apply to its subject in virtue of applying to any less general feature of its subject. On the one hand, if the whole in question is heterogeneous, then φ does not apply to its subject only in virtue of applying to something that *merely* belongs to its subject, as a part belongs to a heterogeneous whole. On the other hand, if the whole in question is homogeneous, the part is of the same *ratio* as the whole, and so the part is not “another thing”; thus each part of the homogeneous whole must be φ as well.⁷⁰ Hence the homogeneous attribute φ applies to a whole “as a whole,” *i. e.* the whole is φ primarily₂. Therefore, we can state the following Connection Theorem:⁷¹

⁶⁹ Scotus asserts that [B1] can be read either consecutively or causally, for the simple reason that it makes a negative assertion: a causal connection or logical condition fails to hold. The statement of [B1*] given above is consecutive rather than causal.

⁷⁰ Note that [B7*] only asserts that a *heterogeneous* whole is φ primarily₁ only if no part is φ , whereas [B3*] asserts that *any* whole is φ primarily₂ only if each part is φ . Each part of a homogeneous whole that is φ primarily₁ must itself be φ . Clearly no non-atomic heterogeneous whole can have an attribute φ both primarily₁ and primarily₂, as Scotus goes on to point out.

⁷¹ There is a clear use of the Connection Theorem, under slightly stronger assumptions—Scotus here is concerned with heavy bodies that are homogeneous wholes—in *Ord.* 2 d. 2 p. 2 q. 6 n. 482 (*Vat.* 7 372): “Hence this whole homogeneous heavy [body] is not moved by itself primarily, such that *being moved*, as it is common to itself and to any given part of it, is present to it primarily according to this primacy [*i. e.* primarily₁], since then it would not be removed from the whole even if it were removed from the part. However, this [claim]—[namely ‘it would not be removed from the whole even if it were removed from the part’]—is false according to the other primacy [*i. e.* primarily₂], necessarily concurrent with this one [*i. e.* primarily₁] (*propter aliam primi-*

[B13] Any whole that is φ primarily₁ is φ primarily₂, for any homogeneous attribute φ .

With this, Scotus's modifications to and clarifications of the Primacy Argument are complete.

The Revised Primacy Argument

Scotus does not explicitly state the Revised Primacy Argument in *QSM* 9 q. 14, but he offers a lucid and compact summary of it in *Ord.* 2 d. 2 p. 2 q. 6 n. 485 (*Vat.* 7 373–374):

Hence Aristotle's argument precisely proves that a whole is not moved by itself primarily: *i. e.* that *being moved*, which is a homogeneous attribute, is not present in a homogeneous whole "primarily" (*i. e.* according to precise causality [*i. e.* primarily₁]) insofar as that attribute is taken as homogeneous (*i. e.* as of the same *ratio* for the whole amount and for a partial amount)—since then it would not be removed from the whole if it were removed from the part, which is false according to the primacy of totality [*i. e.* primarily₂], which is here deduced from the *ratio* of precise causality [*i. e.* primarily₁].

The argument runs as follows. Assume that a homogeneous attribute is present in a homogeneous whole primarily₁; by definition, the attribute can fail to apply to some part of the whole and nevertheless still characterize the whole. Yet if the attribute is present in the whole primarily₁ it must therefore also be present in the whole primarily₂. But a homogeneous attribute that is present in a homogeneous whole primarily₂ must apply to each part of the whole in order to characterize the whole. This result conflicts with the previous claim, derived from the attribute being present primarily₁, that the attribute may fail to apply to a part and nevertheless apply to the whole. Since the argument is completely general, it shows that no homogeneous attribute is present in a homogeneous whole primarily₁.

Scotus's argument turns on showing that it is contradictory for a homogeneous whole to have a homogeneous attribute with a double primacy, and he establishes the contradiction by inferring from the hypothesis that the whole has the attribute primarily₁ that it must thereby have the attribute

tatem necessario concurrentem cum ista) if it is postulated in a homogeneous subject in respect of a homogeneous attribute." Scotus rejects the conclusion drawn initially because primacy₁ must be accompanied by primacy₂: the "necessary concurrence" of primacy₂ with primacy₁ in the case of a homogeneous attribute, described at the end of this passage, is a version of the Connection Theorem. The conclusion Scotus draws from this whole argument, namely that homogeneous bodies are locally moved primarily₂ but not primarily₁, is due to the Revised Primacy Argument presented below.

primarily₂. But this inferential move just is the Connection Theorem: the whole that is moved primarily₁ must also be moved primarily₂, and this result is “deduced from the *ratio*” of primacy₁, that is, it is true by the definition of primacy₁.

The Revised Primacy Argument can be stated in its full generality as follows:⁷²

- [B1*] Anything that is φ primarily₁ is φ even if another thing is not φ . (definition of “primarily₁”)
- [B2*] Assume that φ is predicable of something that is a heterogeneous whole. (hypothesis)
- [B3*] If any part of a whole is not φ , then that whole is not φ primarily₂, for any homogeneous attribute φ . (definition of “primarily₂”)
- [B4*] Heterogeneous wholes are not predicable of their parts. (definition of “heterogeneous whole”)
- [B5*] A part of a heterogeneous whole differs from that whole. (by [B4*])
- [B7*] Any part of a heterogeneous whole that is φ primarily₁ is not φ , for any homogeneous attribute φ . (by [B1*], [B2*], [B5*])
- [B10] If any part of a whole that is φ primarily₁ is not φ , then that whole is not φ primarily₂, for any homogeneous attribute φ . (by [B3*])
- [B11] Any heterogeneous whole that is φ primarily₁ is not φ primarily₂, for any homogeneous attribute φ . (by [B7*] and [B10])
- [B12] There is no heterogeneous whole that is φ primarily₁ and also primarily₂, for any homogeneous attribute φ . (by [B11])
- [B13] Any whole that is φ primarily₁ is φ primarily₂, for any homogeneous attribute φ . (Connection Theorem)
- [B14] Any heterogeneous whole that is φ primarily₁ is φ primarily₂, for any homogeneous attribute φ . (by [B13])
- [B15] Any heterogeneous whole that is φ primarily₁ is both φ primarily₂ and not φ primarily₂, for any homogeneous attribute φ . (by [B11] and [B14])

Therefore: There is no heterogeneous whole that is φ primarily₁, for any homogeneous attribute φ .

Scotus identifies the intermediate result [B12] as Aristotle’s conclusion.

Despite the forbidding formal appearance of the argument, Scotus’s point can be made directly. According to the Connection Theorem, any whole

⁷² The premisses are not numbered consecutively: [B1*]–[B7*] are Scotus’s revisions of [B1]–[B7] respectively, where [B6] (and the revision [B6*]) are no longer needed for the proof; [B8]–[B9] are dropped from the original Primacy Argument as given in §2; [B10]–[B15] are new premisses added to the Revised Primacy Argument.

that is φ primarily₁ is also φ primarily₂, for any homogeneous attribute φ . But in the case of a heterogeneous whole x , being φ primarily₁ entails that (i) no part of x is φ , (ii) x is φ primarily₂, (iii) according to (ii), each part of x is φ . Clearly (i)-(iii) are incompatible—and the incompatibility stems from the initial assumption that x was φ primarily₁, as Scotus concludes.

There are only four possibilities for any heterogeneous whole x :

- (a) x is φ neither primarily₁ nor primarily₂
- (b) x is φ primarily₁ but not primarily₂
- (c) x is φ primarily₂ but not primarily₁
- (d) x is φ both primarily₁ and primarily₂

Now (a) is a non-starter, since there is no reason to say that something is a self-mover if it is locally moved neither primarily₁ nor primarily₂. Scotus takes Aristotle's argument to be directed toward and to rule out (d). However, the Revised Primacy Argument leads to a stronger conclusion: (b) is also excluded. However, this leaves open (c), and hence the Revised Primacy Argument excludes only a restricted range of cases with regard to heterogeneous wholes—to say nothing of homogeneous wholes, which are not even addressed by the Revised Primacy Argument.⁷³

Scotus recognizes the limitations of the final conclusion of the Revised Primacy Argument. As he remarks in *QSM* 9 q. 14 n. 16 (*WV* 7 594b–595a), “it is futile to cite Aristotle here in order to prove this conclusion—that nothing moves itself – generally,” since there are many cases to which the Revised Primacy Argument does not apply. For example, as Scotus continues, it is possible that some whole is φ primarily₂, for some homogeneous attribute φ , and yet is not φ primarily₁—*e. g.* the homogeneous whole *fire* is hot primarily₂ but not primarily₁:⁷⁴

⁷³ The limited scope of the conclusion of the Revised Primacy Argument should not be overstated, for it does rule out a variety of cases. For example, a heterogeneous mixture of elements does not move downward primarily₁. This conclusion should be supported by intuition: the *mixture* cannot be the commensurate subject of the downward motion; rather, each element in the mixture has its own proper direction (perhaps even downward), and the mixture itself moves only derivatively.

⁷⁴ If my reconstruction of Scotus's argument is correct, Scotus stumbles badly after presenting the example of fire. For he immediately goes on in *QSM* 9 q. 14 n. 16 (*WV* 7 595a) to say: “Indeed, a contradiction follows, namely that [the fire] is not hot if a part of it is not hot, and that [the fire] is hot if a part of it is not hot. The first follows from [taking] the primacy in the second way [*i. e.* primacy₂], the second follows from [taking] the primacy in the first way [*i. e.* primacy₁].” But no contradiction follows: fire is a homogeneous whole, not a heterogeneous one. The claim that the fire “is hot if a part of it is not hot” does *not* follow “from [taking] the primacy in the first way”: [B2*] is invalidated, and hence neither [B4*] nor [B5*]

For if fire is the effective cause of its proper heat, [then] even though the whole makes itself hot as a whole, and so the same thing changes or moves itself or acts upon itself primarily (taking “primarily” as it is taken in *Phys.* 5.1 [224^a27–29] [*i. e.* primarily₂]), nevertheless that fire does not make itself hot primarily (taking “primarily” according to the [first] signification [*i. e.* primarily₁]).

What is surprising [in this result]? For that particular amount of fire, from whatever it may come to be, is not hot primarily ([taking “primarily”] in the [first] way [*i. e.* primarily₁]).

Scotus makes a similar point for the downward motion of heavy bodies in *Ord.* 2 d. 2 p. 2 q. 6 nn. 479–480 (*Vat.* 7 371):

Nevertheless, by means of precisely one primacy [*i. e.* primacy₂], some whole can be moved by itself primarily. Now in the case at hand, I say that a heavy [body] is moved by itself primarily [*i. e.* primarily₂], since it both moves and is moved in accordance with any part whatsoever, and to any part whatsoever—though not “primarily” in the first way [*i. e.* primarily₁], but insofar as it is in the whole [*i. e.* primarily₂]⁷⁵—both *moving* and *being moved* are suitable.

The soundness of the Revised Primacy Argument does not exclude the possibility of self-change, although it does exclude self-change (as a homogeneous attribute) being present in a heterogeneous whole primarily₁.

The Downward Motion of Heavy Bodies

Yet the last case mentioned above, about the downward motion of heavy bodies, raises a difficulty: isn't it true that downward motion stems from the very nature of heavy bodies as heavy? Shouldn't the attribute moving downward naturally be applicable to heavy bodies as its commensurate subject, such that heavy bodies move downward naturally primarily₁? Despite the real limitations of the Revised Primacy Argument, it seems after all to exclude such a case. This is a serious challenge to Scotus's account, as he recognizes.⁷⁵

hold, making it impossible to derive the key premiss [B7*] from [B1*]. A homogeneous whole is predicable of its part, and hence there is no way to apply “another thing” in [B1*] to the part. There is some indication that Scotus is aware of the problem: in *QSM* 9 q. 14 n. 17 (*WV* 7 595a–b) he raises the question of what is hot primarily₁, if anything, and he replies that a universal whole (rather than an integral whole) that is homogeneous with regard to its parts is the commensurate subject of such an attribute. The problem in the text cited above would therefore be that a “*particular* amount of fire” is under discussion, not the universal *fire* in general.

⁷⁵ This challenge is presented as an objection in *QSM* 9 q. 14 n. 17 (*WV* 7 595a) and in *Ord.* 2 d. 2 p. 2 q. 6 n. 481 (*Vat.* 7 371). The objection applies to the account given

Scotus begins his response to this challenge by distinguishing the level of generality at which such assertions are made. At the level at which one speaks of attributes stemming from the nature of something, the singular is not in question, as Scotus asserts in *QSM* 9 q. 14 n. 17 (*WV* 7 595a–b):

It has heretofore been customary of no proper attribute (*passio*) that something singular be assigned as its primary subject, but rather [something] universal, which abstracts from every amount, and is equally preserved in this whole homogeneous amount and in [any] part belonging to it. And it is true that [a proper attribute] is never removed from that universal if something of which that universal is not predicated (due to some other circumstance) were not hot [as in the case of fire].

Generally speaking, then, an attribute takes a *kind* of thing as its primary subject, and the attribute applies at this level even if the universal fails to apply to a part of anything falling under it, “due to some other circumstance.”

Yet Scotus’s reply is incomplete at best. If an attribute applies to a kind, a corresponding individual attribute should apply to an individual that falls under that kind. Scotus offers a more nuanced response, one that disregards the heterogeneity or homogeneity of the whole at issue, in *Ord.* 2 d. 2 p. 2 q. 6 n. 481 (*Vat.* 7 372):

I say that we can speak of either (1) *being moved* in general [as it is suitable to the heavy body in general]; (2) this *being moved* as it is suitable to this whole heavy [body]; (3) a part of this *being moved* as it is suitable to a part of this heavy [body]. I state that just as the whole heavy [body] and part of the heavy [body] are homogeneous in *heaviness*, so too the total *being moved* (which is an attribute of the total whole) and the partial *being moved* (which is an attribute of the part) are “being moved” of the same *ratio*—and just as *being moved downward naturally* in general is present primarily by a primacy of precise causality [*i. e.* primacy₁] to the heavy [body] in general, so too this total *being moved* is present to this total heavy body by a like primacy [*i. e.* primacy₁], and this partial *being moved* (which is part of this *being moved* belonging to the total) is present to a part of this heavy [body] by a like primacy [*i. e.* primacy₁].

in note 73 above: granted that a mixture is heavy, why should the heterogeneity or homogeneity of its elements make a difference regarding its attributes? After all, isn’t the commensurate subject of *moving downward naturally* the heavy body, not the heavy simple body?

The attribute *being moved downward naturally* is applicable primarily₁ to a heavy body in general, which entails that “this total *being moved* is present to this total heavy body by a like primacy.” Yet Scotus’s claim does not contradict the conclusion of the Revised Primacy Argument, despite its appearance of so doing, because a “total” attribute is not homogeneous but rather heterogeneous.

The description of an attribute may be ambiguous: “being moved downward naturally” certainly can be taken as a homogeneous attribute. In that case, it does not apply primarily₁ to an individual heavy body.⁷⁶ However, Scotus asserts, we should interpret it as a heterogeneous attribute, one that is cumulative: the “total” attribute *being moved downward naturally* is literally composed of the individual motions of each of the heavy body’s parts. Scotus’s description of “total motion” as a cumulative heterogeneous attribute is given in *Ord. 2 d. 2 p. 2 q. 6 n. 484 (Vat. 7 373)*:

I state that this total heavy [body], insofar as it is homogeneous, is [composed] out of similar parts (and these parts are prior in some way to that whole), such that were they destroyed in the *ratio* of parts, the whole does not remain. Thus I maintain that it is not unacceptable that their own attributes and partial motions be present to them (and in a certain way [are present] before the total motion is suitable to the whole itself), since the total motion is also composed out of the partial motions of the parts, just as the whole heavy [body] is [composed] out of the parts of the heavy [body].

Since “the total motion is also composed out of the motions of the parts,” the total motion is a heterogeneous attribute rather than a homogeneous attribute, as required by the Connection Theorem. Furthermore, the heavy body itself is homogeneous, and so [B5*] does not hold.⁷⁷ Hence the Revised

⁷⁶ Scotus recognizes that the attribute *being moved downward naturally* cannot apply to an individual heavy body as a homogeneous attribute, and he says so immediately after the cited passage—the text of his statement is given in note 65 above.

⁷⁷ Scotus explicitly mentions [B5*] as an objection to his account at the beginning of *Ord. 2 d. 2 p. 2 q. 6 n. 484 (Vat. 7 373)*. Immediately after his description of “total motion” as a cumulative heterogeneous attribute, he explains why [B5*] does not hold: “I deny the assumed proposition: ‘What is suitable to something primarily (*i. e.* according to precise causality [*i. e.* primarily₁]), is not removed from it because something that is not that predicate is removed from something that is not that subject.’ Indeed, this proposition is universally false where the subject has a prior subject and the attribute a prior attribute; for then, upon the removal of the prior attribute from the prior subject, it would follow that the posterior attribute is removed from the posterior subject.” The ‘assumed proposition’ simply is the relevant version of [B5*]. I have altered the punctuation of the Vatican edition, based on the objection

Primacy Argument does not rule out this case.

The Primacy of Self-Change

Scotus's discussion of the Primacy Argument shows that there can be cases of primary self-change, where this is compatible with the admission that there may be really distinct parts of a subject that interact so as to produce the self-change. Nevertheless, the resulting change—the coming-to-be of φ in the subject—is primarily present in the subject. Scotus mentions one such case in response to Aristotle's remark in the *Physics* that self-motion always breaks down into a mover and a moved, in *Ord.* 2 d. 2 p. 2 q. 6 n. 474 (*Vat.* 7 369):⁷⁸

I state first, as regards that authoritative passage in *Phys.* 8.5 [257^b12–13], that obviously anything moving *by cognition* is divided into two [constituents], of which one is primarily the mover and the other primarily what is moved. The reason is as follows: the motive potency of such a mover is an organic potency, such that it requires not only a distinction between body and soul as between the mover and the moved, but perhaps it [also] requires in the body itself (in which there is the organic power) a moving part of the body that

given at the beginning of n. 484, to read as follows: Et tunc nego hanc propositionem assumptam “quod convenit alicui primo (id est secundum causalitatem praecisam), non removetur ab eo quia aliquid quod non est ipsum praedicatum removetur ab aliquo quod non est ipsum subiectum.” Haec enim propositio. . .

⁷⁸ Scotus is concerned to show that there need not be a “real distinction” between the mover and the moved—that is, that the mover and the moved not be distinct things (*res*). The common view held that a real distinction involved separability: two items are really distinct if and only if one could exist without the other (at least by God's absolute power). The real distinction is at the opposite end of the spectrum from a “distinction of reason,” where there are two distinct concepts of one and the same real thing. Now Scotus introduced an intermediate less than real distinction called the “formal distinction.” Roughly, two items are formally distinct if and only if they are really the same (*i. e.* neither can be separated from the other) but the definition of one does not include the other, *e. g.* intellect and will. Items that are formally distinct have some ontological foundation for their distinctness; the difference between them is not a purely conceptual matter—but the precise content of the ontological foundation has proven to be quite difficult to spell out. In any event, Scotus holds that principles are real features of things (“real” in the sense that they are not artifacts of how we think about them), but that they need not be really distinct: principles may only be formally distinct from one another. Whether a real distinction holds is a matter for case-by-case investigation. If principles are located in physically distinct parts of a body, then it is likely that they are separable (by simply removing the parts in question), and hence that a real distinction obtains. The converse, however, does not hold. A real distinction between principles need not entail physically distinct locations for each principle. See note 56 above.

is distinct from the moved part. However, [the distinction into two constituents] is not necessarily the case for something moving itself non-organically, since the whole is uniform with respect to first act, and the whole is in potency with respect to second act.

The motion of inorganic bodies, such as a stone's natural downward motion, is not due to the interaction of physically distinct constituents: the principiative modalities that are responsible for its motion are not located in different parts of the stone. The motion of organic bodies may be due to principles that are located in physically different parts of the body, as in the case of jumping mentioned on p. 9 above, which explains how non-uniform and discontinuous motion is possible in the case of animals. Nevertheless, whether the body be inorganic or organic, its motion is present to it "primarily" (in one of the two available ways).

The fact that a real distinction may hold between the location of the principiative modalities responsible for self-change is irrelevant to whether the change is present primarily. The question is whether the attribute that comes to be in the subject is present in it as a commensurate subject or is present only in virtue of a part of the subject—and this question has nothing to do with the source of the attribute (internal or external to the subject). The ascription of primacy to the presence of an attribute in a subject does not depend on whether the attribute is present through the subject's own activity or through the activity of an external agent. Therefore, the Revised Primacy Argument not only fails to rule out the possibility of self-change, but also shows that the conclusion drawn on the basis of the Primacy Argument—that self-change is only accidental or incidental, due to the interaction of really distinct factors—has no force. Self-change is due to real features of things, but these features may or may not be really distinct, and the fact that self-change is due to real features keeps it from being merely incidental or accidental.

6. Scotus's Response to the Continuity Argument

The first difficulty with explanation posed by the Continuity Argument, that ascriptions of self-change are explanatorily vacuous, has already been effectively countered by Scotus: an ascription of self-change depends on a nuanced view about the possession of principiative modalities. Most of Scotus's energies are therefore directed at the second difficulty, explaining conditions under which such ascriptions are legitimate.

First, Scotus grants a limited version of the conclusion of the Continuity Argument: inanimate natural beings capable of self-change *do* always act. (Animal movement and the exercise of free will are separate cases; see the

discussion in §7.) However, inanimate natural beings can also be interfered with, as Scotus asserts in *QSM* 9 q. 14 n. 10 (*WV* 7 589a):

First of all, it could be said in general that a natural cause, although terminated of itself at its effect, can nevertheless be interfered with. However, when the interference is removed, [a natural cause] immediately acts for the production of the effect—just as it would have acted from the beginning if there had not been interference. Thus wherever the two conditions (described above [in the First General Conclusion]) that are necessary for something to act upon itself are fulfilled, then, if one supposes interference from the beginning due to something external, after the interference is removed [the natural cause] will immediately act upon itself.

Thus stones will fall unless prevented, hot water cools itself off, and so on. In order to keep this reply from being vacuous, Scotus is careful to describe how a natural agent can be interfered with, in *QSM* 9 q. 14 n. 25 (*WV* 7 603a–b):

As for the [Continuity Argument], I reply that the agent [does not act in the following six cases]: *i*) [the agent] does not act when the terminus is given; *ii*) [the agent does not act] when [the terminus] is not given but the agent can be interfered with by a stronger contrary power so that it does not act; *iii*) if [the agent] is not the entire active cause, but there is another [factor that must act] along with it, [then] if that other [factor] is not present [the agent] does not act; *iv*) [the agent] will not act if it does not have that in which or on which it acts; *v*) [the agent] will not act if another action is naturally presupposed by it and that [action] does not take place; *vi*) [the agent may not act] if [the agent] is free, capable of itself of not acting. By means of any one of (*i*)–(*vi*) it can be explained for any given motive [agent] why it does not always move itself.

These six ways in which self-change may be prevented form a sort of checklist for the natural philosopher, and provide a list of legitimate grounds on which to claim that an inanimate being changes itself even though it is not occurrently doing so.

Given the restrictive conditions, why should anyone ever postulate self-change? Scotus argues that self-change is a way in which the world is “more perfect,” in *QSM* 9 q. 14 n. 14 (*WV* 7 592b–593a):

Finally, it is stated in general that something ought not to be denied to any nature that, when postulated, would be characteristic of perfection in such a nature—unless it be shown on some other grounds that such a perfection is not present in that [nature]. For nature

always does what is better when it would have been possible [to do so] and did not lack the necessary [means]. Generally, creatures are produced in being lacking some perfection that they are suited to attain. For instance, living [creatures] generally [are produced] in an incomplete quantity,⁷⁹ without even operations belonging to the soul; some other [things are produced] without proper qualities; yet others without a proper place. If [in these [things]]⁸⁰ a principle that is active with respect to such perfection that they are suited [to attain] were granted [to exist], they would simply be more perfect, since [they would be] less dependent upon extrinsic [forces]. Therefore, whenever it is not apparent that such a nature does not have a principle that is active with respect to such a perfection (or rather [whenever] it especially seems that [the nature] has [such a principle]), this point should simply be conceded, since this dignifies nature.

Thus self-change is to be postulated whenever possible, if it is not prevented in any of the six ways Scotus has mentioned. Scotus's use of the "dignity of nature" may sound unconvincing to modern ears, but we can take it as a kind of regulative ideal for physical explanation: assume things actually possess causal powers unless there are good grounds for identifying an external principle that is solely responsible for bringing about a change.⁸¹

The final worry raised by the Continuity Argument is that Scotus's world will not constitute a unity, that there will be physical phenomena in it that are not explained by external causes. Scotus has two replies to this worry. First, as noted in the preceding paragraphs, instances of self-change may not be causally linked to other physical events, but will nonetheless fall under the heading of a general physical principle, namely that natural beings acquire and actualize all the perfections of which they are capable,

⁷⁹ "In an incomplete quantity": that is, not fully grown.

⁸⁰ Reading *eis* for *eius*.

⁸¹ The modern regulative ideal of physical explanation inverts this proposition: assume an external causal explanation unless forced to grant self-change. Nevertheless, cashing out Scotus's adamant insistence on self-change explanations as a regulative ideal does serve to show how his views are not merely quaint or antiquated, for it presses the question why we should choose one regulative ideal rather than another. If the answer is simply instrumental—that one serves to generate and sustain more fruitful physical theories of the world—then that, I take it, is precisely why we are modern and not mediæval physicists today. Scotus's views may have been superseded, but that does not make it silly for him to hold them, and the justification of our view should be, appropriately enough, a historical account of the adoption of progressively more fruitful theories that justify the modern regulative ideal of physical explanation.

unless prevented. Second, Scotus holds that there is no better alternative. To prohibit self-change would be to require that all causation is univocal. But how, Scotus asks, does univocal causality produce a connection among things in the world any more than equivocal causality does? Thus he writes in *QSM* 9 q. 14 n. 15 (*WV* 7 593b):

[I state] that a univocal action *never* produces a connection among the active and passive [elements] in the universe. Nor does the Philosopher seem to assume such a [univocal] agent and its effect, essentially ordered as regards a third such [effect]. Rather, there is a more essential connection due to equivocal agents and [their] effects. . . Causes that are essentially ordered as regards a third effect have a different order in causing, according to what has been said in *QSM* 2 qq. 4–6 [n. 16] ([*WV* 7 128b–129a]). And perhaps that [order] is the essential connection belonging to the universe, whether the ultimate cause be univocal or equivocal with its effect. And the connection is thus preserved by postulating in the same [thing] the *ratio* of an ultimate cause as regards its effect, just as [the connection is preserved] by postulating [the *ratio* of an ultimate cause as regards its effect] in another [thing].

Equivocal causes and their effects unite two distinct kinds of forms, unlike univocal causes, and so can be taken to produce a genuine interconnection and unification of disparate elements in the world. Furthermore, cases of self-change are paradigmatically cases in which two principiative potencies concur to produce jointly their principiatum, which itself is a way of unifying distinct things, namely as partial co-causes (or co-principles). Yet if co-causality or co-principiation is the means by which disparate elements are united, this explanation of unification is essentially indifferent to whether the causes or principles be univocal or equivocal. Hence there is no reason to see Scotus's account as endangering the unity of the world.

Therefore, the worries raised by the Continuity Argument have all been put to rest, and self-change explanation vindicated as a permissible kind of physical explanation. Self-change can therefore be regarded as a real feature of the world, and insistence upon it as a pervasive feature of physical explanation.

7. Scotus's Interpretation of Aristotle

Scotus is not content merely to hold that self-change is a real feature of the world: he maintains that this is Aristotle's position as well as his own. To prove that this is so, Scotus takes up and carefully analyzes texts from Aristotle that seem to support the common position rather than his own

(cited in §2 above). The results are instructive.

Scotus's Response to Met. 9.1 1046a28–29 and 1046a9–11

Scotus treats the first pair of passages from Aristotle together, offering a unified response to both. His discussion conceals a wealth of textual difficulties that suggest a striking conclusion: the existence of another, otherwise unknown, Latin translation of Aristotle's *Metaphysics*. Let us consider his solution and then turn to the textual difficulties.

Scotus presents his unified solution in *QSM* 9 q. 14 n. 25 (*WV* 7 603a) as follows:

As for the citation of Aristotle here (*Met.* 9.1 1046^a28–29). . . Aristotle added “insofar as it is naturally unified” because he wished not to say “nothing moves itself” absolutely, but rather [only] with the restriction ‘*insofar as*’. And “naturally unified” is taken [here] for “the same [thing],” as is clear from his proof: “for it is one thing and not another.” Thus in the definition of active potency ([in *Met.* 9.1 1046^a9–11]), [Aristotle] did not put “transforming another” absolutely, but correctly added “insofar as it is another.”

This is an elegant solution: when Aristotle asserts that nothing acts upon itself insofar as it is naturally unified, Scotus suggests that this is to be read (on the basis of Aristotle's further remarks) as “nothing acts upon itself insofar as it is the same thing.” But that, Scotus holds, is compatible with something acting upon itself insofar as it is another, and indeed explains why Aristotle offered a disjunctive definition of active potency as the principle of transforming another *or* transforming itself insofar as it is another.⁸² Thus nothing acts upon itself insofar as it is the same thing, but only insofar as it is another. When taken together, these passages have an effect opposite to that intended by the defenders of the common position—they support Scotus's contention that self-change is possible.

Scotus's response, however elegant it may be, depends on the fact that Aristotle's definition of active potency is disjunctive. It seems, though,

⁸² Scotus also discusses Aristotle's definition of active potency in *QSM* 9 qq. 3–4, and he makes the same point there in n. 12 (*WV* 7 551b): “As for the third [argument], it should be stated that [Aristotle] put ‘another or insofar as it is another’ into the definition of active potency (*Met.* 9.1 1046^a9–11). And [Aristotle] hints at why he does this in *Met.* 5.12 [1019^a17–18], where he immediately appends [the remark]: ‘The medical art may exist as a potential being (*potestas ens*) in what is healed, but not insofar as it is what is healed.’” The passage to which Aristotle's remark is appended states that active potency is the principle of moving or transforming “what is different *or* [itself] insofar as it is different” (1019^a16). This passage also has textual difficulties: see the discussion above.

that there is no known channel of transmission whereby Scotus could have come by this information. There is no question that he has it; his extensive discussion in *QSM* 9 qq. 3–4, and especially the principal arguments for q. 4, make it clear that Scotus’s text of the definition read as follows:⁸³

principium transmutandi aliud aut inquantum aliud

This reading holds for 1046^a9–11 (and 1046^b4), and a parallel reading for the definition of passive potency at 1046^a13–14. Scotus also reads *Met.* 5.13 1020^a2 and 1020^a6 in the same way. Yet in each case, Aristotle’s text reads:

[AR1] ἀρχὴ μεταβολῆς ἐν ἄλλῳ ⟨ῥ⟩ ἢ ἄλλο,

where ῥ is omitted in some manuscripts.⁸⁴ As far as can be determined, Scotus read the parallel passages in *Met.* 5.12 1019^a15, 1019^a20, and 1019^a35 in a parallel way:

principium motionis vel transmutationis in diverso aut inquantum diversum

And here Aristotle’s text reads:

[AR2] ἀρχὴ κινήσεως ῥ μεταβολῆς ἢ ἐν ἐτέρῳ ⟨ῥ⟩ ἢ ἕτερον,

where ῥ again is omitted in some manuscripts.⁸⁵

There are two textual problems: (*i*) how Scotus knew about the disputed ῥ in each of the eight passages; (*ii*) how Scotus knew that the gerund phrase ‘*transmutandi aliud*’ was an appropriate replacement for μεταβολῆς ἐν ἄλλῳ in the first five passages—for neither is reflected in any known channel of transmission.⁸⁶

⁸³ The citation of 1046^a9–11 as the “initial text” for q. 4 in *QSM* 9 qq. 3–4 n. 1 has been filled in by the editors, not derived directly from Scotus’s text. See *WV* 7 542a–543a for the principal arguments that Aristotle does not define “active potency” correctly in this passage, where Scotus takes each term in the definition and bases an argument on it: there the text is said to read *principium transmutandi aliud inquantum aliud*, to which his rejoinder, reported in the preceding note, is that it correctly reads *principium transmutandi aliud aut inquantum aliud*.

⁸⁴ Using the Ross-Jaeger standard sigla for manuscripts of the *Metaphysics*, the situation is as follows: *A*^b omits ‘ε’ in all five passages; *J* omits it at 1046^a9–11 and again at 1020^a2 and 1020^a6; *E*¹ omits it at 1020^a2. Ross and Jaeger mistakenly hold that *J* is a tenth-century manuscript, whereas it is in fact a ninth-century manuscript. However, the later manuscript *E* is a witness to an earlier tradition. Both *E* and *J* belong to the same family of manuscripts; *A*^b belongs to different family.

⁸⁵ Here *A*^b omits ‘ε’ in all three passages.

⁸⁶ I have found only one possible, rather peculiar, anticipation of Scotus’s reading. When Albert the Great offers his literal commentary on 1019^a15, he glosses Aristotle’s definition of active potency in his *Metaphysics* 5.12 tract. 2 as follows (capitalized words are Aristotle’s text as translated into Latin): *Ergo TOTALITER sive universaliter principium mutationis vel motus in movente DICTUR POTESTAS mutandi DIVERSUM re vel re idem, sed tamen movet et mutat inquantum diversum est* (Geyer [1960] 16.1

There are five known mediæval translations of Aristotle's *Metaphysics*. Two are irrelevant: the partial twelfth-century translation from the Greek made by James of Venice (the '*vetustissima*') and the anonymous thirteenth-century revision of James's translation (the '*vetus*') do not cover the whole of the *Metaphysics*. However, *Met.* 5 and *Met.* 8 are covered in the three remaining translations: the anonymous twelfth-century translation from the Greek (the '*media*'); Michael Scot's translation (the '*nova*') from the Arabic along with Averroës's "great commentary," dating from 1220–1235; William of Moerbeke's translation from the Greek, made prior to 1272. Once available, Moerbeke's translation apparently became the most widely used.⁸⁷

All three translations, in each of the eight passages mentioned above, regularly omit η .⁸⁸ They render [AR1] as follows:

principium transmutationis in alio in quantum aliud (Moerbeke = *media*)

principium transmutationis in alio prout aliud est (*nova*)⁸⁹

and [AR2] as follows:

251.18–22). This is peculiar for two reasons. First, Albert denies that anything can act upon itself in his *Sent.* 1 d. 3 art. 12. Second, there is no evidence that Scotus was familiar with Albert's writings in general, much less the details of his commentary on the *Physics*. I suspect Albert's remark is simply anomalous.

⁸⁷ William of Moerbeke's translation survives in 217 manuscripts, the *nova* in 126 (most likely due to Averroës's fame as *the Commentator*), and the *media* in 24. See Kretzmann et al. [1982] 77.

⁸⁸ This in itself is a peculiar fact: only A^b omits the disputed reading in each case, but none of the mediæval Latin translations is believed to have been based on A^b . I cannot speak to the Arabic source of the *nova*, and the possible Greek manuscripts used for translation into Arabic. However, the *media*, according to Vuilleman-Diem's statistical studies, was based directly on a close relative of E , which preserves the disputed readings. William of Moerbeke apparently brought J back from Constantinople; in any event, it is certain that he used it. (Even some marginal annotations in J seem to be in the same hand as Moerbeke's autograph of his translation of Archimedes.) In addition to J , Moerbeke also used a copy of the *media*, and often follows it slavishly. Moerbeke's treatment of these passages could therefore be explained by his following the *media* in disputed readings. But why does the *media* omit these readings, since they are all present in E ? There is no obvious answer.

⁸⁹ Scotus would have been familiar with the *nova* along with Averroës's commentary; Averroës paraphrases this passage several times, and explicitly argues against self-change, as follows (*Aristotelis opera cum Averrois comentariis*, Venice: Iuntina 1562, tom 8 fol. 227B): "[Active potency] is the principle of transformation into another in that it is another, not in itself, since it is clear that nothing acts upon itself (*principium transmutationis in aliud secundum est aliud, non in se, cum sit manifestum quod nihil agit in se*)." A similar argument to the same effect is found in Averroës's commentary on the *Physics*.

principium motionis vel transmutationis in diverso inquantum diversum (Moerbeke = *media*)

principium motionis vel transmutationis in altero prout alterum est (*nova*)

(with appropriate changes depending on context). There is no disjunction present in any of the three translations, despite Scotus's explicit assertion that Aristotle's definition is disjunctive. This rules out the possibility that Scotus derived his readings from borrowings among various translations. Furthermore, while it would be possible to read '*transmutationis in alio*' (or '*in diverso*' or '*in altero*') as having the force of a gerund, Scotus is just as explicit that Aristotle's text is itself formulated with a gerund.

One hypothesis to explain these peculiarities is that Scotus knew Greek. But there is no good reason to think so; knowledge of Greek was a sufficiently rare commodity in his day to be remarkable, and none of his other discussions turns on a disputed point in Greek. Therefore, all we are entitled to conclude is that there were at least some systematic corrections to the Latin translations of Aristotle text made by a person familiar with Greek, and that these corrections have come down to us only in the derivative form in which we find them employed by thinkers such as Scotus in their analyses of Aristotle.

Since nothing else in Scotus seems to turn on any knowledge of Greek, it seems unlikely that Scotus learned about the textual difficulties in these passages from a colleague versed in Greek: if such a person were available to Scotus, he surely would have made extensive use of his knowledge. Furthermore, the corrected readings are systematic over several passages, which is not likely to happen if Scotus were simply to ask someone versed in Greek about the sense of only one of the passages—and there is no reason for him to have suspected the others, given the readings present in the current translations.

If we rule out these possibilities, that leaves us with the hypothesis that these corrections were a part of the written tradition that has since been lost. Now they may have been circulated precisely *as* corrections: a mediæval errata-sheet. Yet such correction-sheets often acquired titles and lives of their own, *e. g.* the treatises that "correct" the works of Thomas Aquinas, and are often referred to by name.

If these corrections did not circulate in separation from Aristotle's text, the conclusion seems inevitable that they were incorporated into Aristotle's text. There are two possibilities, the second, I believe, more likely than the first. First, the corrections may have been made by someone familiar with Greek while copying of one of the standard translations (probably

the *media*). If so, Scotus may well not have known that his translation was systematically different from others' translations, which would in part explain why he does not remark on the textual differences he found. Yet it seems hard to believe that someone versed in Greek would be given a menial copyist's task. Second, the corrections could have been part of an original translation of the *Metaphysics* that has since been lost to us. Scotus, like most mediæval philosophers, cites Aristotle from memory for the most part and does not discriminate among the various translations with which he was familiar; his citation here may be due to an unknown translation –perhaps a corrected compilation from previous translations. In any case, it seems to me we are entitled to conclude that Scotus's discussion is evidence for the existence of a hitherto unknown Latin translation of the text of Aristotle's *Metaphysics*, one that has since been lost to us.⁹⁰

Scotus's Response to Phys. 8.4 255b29–31

Aristotle's remark in *Phys.* 8.4 255^b29–31 that “natural things only have a principle of being acted upon in respect of motion, and not of doing [anything]” was adduced in support of the thesis that self-change is impossible, intended to verify the conclusion of the four arguments given in *Phys.* 8.4 255^a3–18. Scotus responds that the naturalness of *x*'s motion is strictly due to *x*'s possession of a passive principle receptive of the motion. He argues for this response in *Ord.* 2 d. 2 p. 2 q. 6 n. 466 (*Vat.* 7 364):

Nevertheless, on account of the Philosopher's remark ([*Phys.* 8.4 255^b29–31]) I add further that this motion is not “natural in itself” in virtue of the fact that it has an active principle in itself, but only in virtue of the fact that what is able to move has an intrinsic passive

⁹⁰ One piece of evidence for the second rather than the first possibility is that this reading of *Met.* 8.1 1046^a9–11 is not unique to Scotus. We can find the same reading in Jean Buridan's *Questions on Aristotle's "Metaphysics"*. Buridan begins Book 9 with the question “whether it is possible for the same [thing] to act on itself or to be acted on by itself”; one of his principal arguments reads as follows (*Quaestiones in Metaphysicam Aristotelis*, Paris 1518 fol. 56r): “The opposite is argued for by Aristotle in *Met.* 5 and 8, where he defines ‘active potency,’ saying: ‘active potency is the principle of transforming another or [itself] insofar as it is another.’” That is, *potentia activa est principium transmutandi alterum aut in quantum alterum*. It is unlikely that Buridan derived this reading from Scotus: there is no evidence that Buridan was familiar with Scotus's writings. The editors at the Franciscan Institute, currently engaged in producing the critical edition of *QSM*, hold that the text of the *Metaphysics* that Scotus used is a pastiche, since his readings seem to be derived from the *media* in some places, Moerbeke in others, and so on. My view is that his text must have been more than a mere pastiche; its author must have examined the Greek text itself, at least to some extent, for the reasons given above.

principle naturally inclining it to motion. This is clear by the definition of ‘nature’ in *Phys.* 2.1 [192^b20–23]: “[Nature] is a principle of motion of that in which it is *per se* and not *per accidens*.” Indeed, nothing is a principle of naturally moving (*principium naturaliter movendi*) for something except insofar as it is *per se* in that which is moved. However, it is not *per se* and primarily in something that is moved except insofar as it is passive. Hence it is not something by nature (or a natural principle belonging to something) except because there is a passive principle in what is moved. This point is also clear because something is moved naturally for the reason that it is moved as it is naturally apt for it to be moved.

Scotus, I believe, has in mind Aristotle’s contrast between “natural” and “violent” motion drawn in *Phys.* 8.4 255^b31–256^a4: it is natural for a stone to move downward, not to be moved upward (*e. g.* when thrown). But the “violence” of a stone’s motion upward cannot be due to its being thrown; a stone can just as easily be thrown downward, in which case the motion is natural. Rather, the upward motion of a stone is contrary to its nature because it is contrary to its passive principiative potency for being moved downward. Therefore, judgments about the “naturalness” of a given subject’s motion are true or false only as regards the subject’s passive principles, and thus are simply *independent* of whatever active principles the subject may possess.

Scotus applies his general claim, sketched above, to the motion of heavy and light bodies in *Ord.* 2 d. 2 p. 2 q. 6 n. 467 (*Vat.* 7 365):

So it is in the case at hand, such that although here (as in many other cases) the active principle is the principle of moving, nevertheless [something] is not naturally moved on account of that active principle of moving, but rather due to a passive principle on account of which it is moved in this way. After [Aristotle] said that “the act of a light [body] is *being someplace upward*” [*Phys.* 8.4 255^b12–13]), this is what he says next ([*Phys.* 8.4 255^b14–15]): “And nevertheless the question is raised: why are [light and heavy bodies] moved into their places?” He replies ([*Phys.* 8.4 255^b15–16]): “The reason is because they are naturally apt to be there.” [Aristotle] *explicitly* says “into their places” (*i. e.* they are naturally moved into those places) “because they are naturally apt to be there” (*i. e.* they have a natural inclination to that place). And this is the way slightly later he adds that “[natural things] only have a principle of being acted upon [in respect of motion] and not of doing [anything]” ([*Phys.* 8.4 255^b29–31]), namely in respect of motion insofar as [the motion] is

natural.

Scotus interprets Aristotle in this passage as implicitly using the distinction between a subject's passive principiative potencies for movement and whatever its active principiative potencies may be:

Thus in the resolution of this doubtful point about the motion of heavy [bodies], [Aristotle] speaks there—as though between the lines—of a natural principle of this motion and of its effective principle (which is only passive).

The discussion of heavy and light bodies here makes sense, according to Scotus, only if Aristotle is drawing a distinction between active and passive principles implicitly (*quasi interscalariter*). Again, a careful examination of Aristotle's text reveals that a passage that apparently supported the common position does not undermine Scotus's own position.

Scotus's Response to Phys. 8.4 255a3–18

What of Aristotle's four arguments about heavy and light bodies, cited in §2? First, Scotus separates the fourth argument from the first three arguments. There is a sense, Scotus holds, in which Aristotle's fourth argument establishes its conclusion, but it is not a sense that threatens the thesis that heavy and light bodies move themselves. Scotus writes in *Ord.* 2 d. 2 p. 2 q. 6 n. 469 (*Vat.* 7 366):

Also, [Aristotle's] fourth argument, regarding a continuous [body], does not conclude precisely insofar as [a continuous body] is a particular amount.⁹¹ But with regard to a continuous [body] (*i. e.* what is of the same disposition in every part), [Aristotle] proves that a heavy [body] does not move itself effectively, since there is not one part in act that can make another [part] in act according to the same quality, as he says in *De sensu* 6 [447^a3–4]. I grant that in this way a part of a heavy [body], existing in act, does not cause motion in another part. But the whole heavy [body] is in act according to first act, and it causes itself in second act.

Aristotle is correct that a continuous homogeneous body is not in motion due to the interaction of its physically distinct parts: a part does not cause motion in another part. Yet this is compatible with the claim that the entire homogeneous body is a self-mover. On the one hand, it has distinct active principiative potencies⁹² and passive principiative potencies, which

⁹¹ "Insofar as [a continuous body] is a particular amount": *inquantum quantum*. That is, as Scotus goes on to say, Aristotle is concerned here not merely with continuous bodies but rather with continuous homogeneous bodies.

⁹² Scotus directly asserts that homogeneous bodies have such active principiative poten-

make it a potential self-mover—the possession of these potencies makes the continuous homogeneous body to be in first act. On the other hand, the exercise of these potencies such that it is an actual self-mover is due to itself alone, in the absence of any obstruction—and hence it is a self-mover in second act. The way in which such bodies move themselves primarily has been discussed in §5 above.

Aristotle's first three arguments in *Phys.* 8.4 255^a3–18, Scotus maintains, all amount to the same thing and are therefore irrelevant to the motion of light and heavy bodies, as he states in *Ord.* 2 d. 2 p. 2 q. 6 n. 468 (*Vat.* 7 365–366):

The first three [arguments] (which have one force) show that the heavy [body] does not move itself as an agent moves itself by means of cognition.⁹³ Indeed, an animal could not move itself stopping short of its ultimate intended terminus—nor too could it turn itself aside or stop itself—unless it were to act by means of cognition. And from this point the Philosopher's thesis is adequately established, [namely] that [light and heavy bodies] are not primary movers. For a primary mover moves by means of cognition, since “it is characteristic of wisdom to direct” (*Met.* 1.2 982^a17–18), as shown above in *Ord.* 1 d. 2 nn. 76–78 (*Vat.* 2 175–176]) and *Ord.* 1 d. 3 nn. 261–268 (*Vat.* 3 160–164]).

Heavy bodies are obviously not animals; the ability to cease one's motion or the ability to move in contrary ways themselves depend on cognition—*i. e.* these abilities are proper to animals, and thus have no bearing on the self-motion of heavy bodies. Scotus is correct that the ability to move to the left, the ability to move to the right, and the ability to stop are active principiative potencies that go beyond the mere active principiative potency for movement in a single direction. The latter potency, as found in stones, is continuously actualized unless prevented, as established in §6 above. Animal movement, on the other hand, is clearly discontinuous and can be directed in many ways. Hence there must be a principle or cause that actualizes the further active principiative potency to move to the left (say). This cause must be the sensitive or intellective soul, since what it is to be an animal is

cies. Scotus explains the apparent testimony of *Phys.* 8.4 255^b30–31 to the contrary by pointing out that Aristotle was there trying to establish his position that motion is natural only in virtue of the passive principiative potencies a thing has, regardless of its active principiative potencies (if any). See pp. 61–62 above.

⁹³ Scotus does not use “cognition” to mean “intellectual activity,” but rather to refer to the activities of the sensitive soul as well as the intellective soul. Thus a frog jumps “by means of cognition.”

to have within oneself the power of sensation and movement. If rocks could move up or down at will, they too would be animals. Hence Scotus is correct to point to the possession of a sensitive or intellective soul as the “source” of discontinuous and contrary motion.⁹⁴ Only beings endowed with cognition are primary movers.

Now Scotus recognizes that Aristotle’s four arguments have a further role to play in the regress-argument for the existence of a Prime Mover. Scotus replies to the objection that Aristotle’s regress-argument would not succeed if heavy and light bodies are self-movers, in *Ord.* 2 d. 2 p. 2 q. 6 n. 470 (*Vat.* 7 367):

I state that [Aristotle] adequately establishes [his thesis] on the basis of the distinction of [first and second] potencies. Indeed, [light and heavy bodies] do not reduce themselves from second potency to act, unless they had been previously reduced from first potency to first act (or at least could be reduced to first act). I say this for the elements as wholes. These wholes, according to [Aristotle], are ungenerable and incorruptible.⁹⁵ Nevertheless, since these [wholes] are of the same *ratio* as their parts, it is not incompatible for them to be reduced from first potency to first act, just as their parts are reduced [from first potency to first act]. Hence it follows that although light and heavy [bodies] move themselves from second potency to second act, nevertheless what is capable of motion [either] is or is moved from first potency to first act by something else extrinsic [to it].

Scotus takes Aristotle’s proof of the existence of a Prime Mover to be a regress-argument, but the regression is *not* based on a series of actual motions (or at least need not be based on actual motions). Instead, the regres-

⁹⁴ Scotus discusses animal movement extensively: in addition to his remarks in *QSM* 9 q. 14, see the texts mentioned in note 2. The difference between animals and humans in this regard is that in human beings the will is itself a self-mover, whereas animals do not have a will. Without considering the details, it is clear that Scotus’s account permits animals to be self-movers while at the same time allowing for external causal influences. These external causes do not cause the animal’s movement directly, but rather affect its sensitive soul, which itself initiates the motion. This last claim is nevertheless compatible with the view that animals indeed move themselves, since the *proximate* cause of an animal’s movement is its own active principiative potency, triggered by its sensitive soul: see the passage cited in the next note.

⁹⁵ Aristotle never says this, but it is taken as a direct conclusion from his remarks that the heavens are ungenerable and incorruptible and that the elements are integral parts of the heavens: see, for example, *De cael.* 2.1 283^b26–284^a2 and *Phys.* 4.5 212^b18–22. Contrary to the modern reading of texts such as *De gen. et corr.* 2.4, on the standard mediæval reading of Aristotle the four elements were taken to be sempiternal and only composites and mixtures made from the elements come into being and pass away.

sion is based on the possession of the very potency to be moved. Why do stones, say, have a principiative potencies to move and to be moved? Where does the active principiative potency for a stone's self-motion originate? Presumably, a heterogeneous body owes its active principiative potency for motion in a given direction to its composition, to the mixture of the four basic elements and the predominance of one over the others, which "moves" a heterogeneous body from first potency to first act. This "mixture" itself, characteristic of sublunary bodies, is due to the movement of the Sun in the plane of the ecliptic (*De gen. et corr.* 2.10 336^a31–336^b15). But what causes the passive principiative potency of the Sun to be moved in the plane of the ecliptic? And so on. There is a genuine regress, but it is not a regression based on actual motion. Hence Aristotle's argument for the existence of a Prime Mover can proceed even in a world of self-movers.

Scotus is quite explicit about this last conclusion. He rejects the proposition that "everything that is in motion is moved by another." But a weaker proposition is sufficient for Aristotle's argument, namely "everything that is moved is moved by another," which does not entail the first proposition (*Ord.* 2 d. 2 p. 2 q. 6 n. 470, *Vat.* 7 367):

Indeed, it is not necessary that if everything that is moved is moved by another that in every motion [what is in motion] be moved by another—and the first [proposition] is sufficient for the Philosopher, since by means of this [proposition] one arrives at something "other than all these" that neither in one motion nor in any given motion will be able to be moved by another, but is completely an immovable mover.

Aristotle's argument holds so long as there are things naturally capable of movement. Hence the admission of self-movers is compatible with the remainder of the argument in *Phys.* 8.⁹⁶

⁹⁶ Scotus offers another way of saving Aristotle's conclusion in *Ord.* 2 d. 2 p. 2 q. 6 n. 471 (*Vat.* 7 368): "Likewise, it can also be said that—in that motion—even if [light and heavy bodies] were moved by themselves effectively, nevertheless they are not moved as by primary movers, from which they also do not move by means of cognition. It follows that they presuppose something moving in this way by means of cognition. And thus, although they move themselves effectively, nevertheless they do not [move themselves] in this way unless they are moved by another, although they are not [moved by another] as by a proximate cause." It is not clear, however, that this alternative will work: why should the movement of heavy and light bodies presuppose the existence of beings endowed with sensitive or intellective souls? Why assume there *are* "primary movers" in the sense required here? If we grant that there are, then this alternative does provide a basis for Aristotle's argument, but there is no reason to grant it. It should be mentioned that Scotus is only interested in defending

Conclusion

Scotus's analysis and defense of self-change is powerful and sophisticated, showing that he was worthy of his honorific title as *Doctor subtilis*. His defense of self-change, in the technical apparatus he uses as well in his textual exegesis, is thoroughly Aristotelian—at least in the sense that it is inspired by Aristotle, and he presents it as the proper account of Aristotle's own views. Duns Scotus has always been known as a great theologian; perhaps the time has finally come when we can also see him as a great physicist (albeit one with a pronounced theoretical bent) and a great interpreter of Aristotle.

Aristotle's argument up to a certain point. In the first reconstruction, given in the text above, the existence of a world including things capable of being moved (even if only by themselves) is presupposed; on the alternative reconstruction described here, the existence of primary movers is presupposed. Scotus himself thinks that there is not much to choose between these presuppositions, since both color Aristotle's conclusion with a kind of contingency—a feature that applies to all “physical” proofs. However, since the existence of a Prime Mover (or of a God) is, strictly speaking, a *metaphysical* question, Scotus thinks that it requires a metaphysical proof. He describes such a proof in many places, the most complete version of which is found in his late work *Tractatus de primo principio*, where the existence of God is proved by metaphysically necessary propositions. The structure of the proof is by regression based on natures.

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